LTIP GRANT #3

APPLICATION FOR FINANCIAL ASSISTANCE
Revised 4/99

IMPORTANT: Please consult the "Instructions for Completing the Project Application" for assistance in completion of this form.

SUBDIVISION: Hamilton County **CODE#** 061- 00061

DISTRICT NUMBER: 2 **COUNTY:** Hamilton **DATE** 09 / 01 / 06

CONTACT: Tim Gilday **PHONE #** (513) 946 - 8914

(THE PROJECT CONTACT PERSON SHOULD BE THE INDIVIDUAL WHO WILL BE AVAILABLE ON A DAY-TO-DAY BASISDURING THE APPLICATION REVIEW AND SELECTION PROCESS AND WHO CAN BEST ANSWER OR COORDINATE THE RESPONSE TO QUESTIONS)

FAX (513) 946-8901 **E-MAIL** tim.gilday@hamilton-co.org

PROJECT NAME: BLUE ROCK/LIVINGSTON/GALBRAITH ROAD IMPROVEMENT

SUBDIVISION TYPE
(Check only 1)
X 1. County
__2. City
__3. Township
__4. Village
__5. Water/Sanitary District
(Section 6119 O.R.C.)

FUNDING TYPE REQUESTED
(Check All Requested & Enter Amount)
X 1. Grant $1,049,847.00
__2. Loan $_____
__3. Loan Assistance $_____

PROJECT TYPE
(Check Largest Component)
X 1. Road
__2. Bridge/Culvert
__3. Water Supply
__4. Wastewater
__5. Solid Waste
__6. Stormwater

TOTAL PROJECT COST: $ 2,142,544.00

FUNDING REQUESTED: $ 1,049,847.00

OFFICE OF NEW BURLINGTON COUNTY ENGINEER
2006 SEP -7 AM 10: 03

DISTRICT RECOMMENDATION
To be completed by the District Committee ONLY

GRANT:$ 1,049,847.00 **LOAN ASSISTANCE:**$_____
SCIP LOAN: $_____ **RATE:**_____% **TERM:** _____yrs.
RLP LOAN: $_____ **RATE:**_____% **TERM:** _____yrs.

(Check only 1)
___State Capital Improvement Program
X Local Transportation Improvements Program
___Small Government Program

FOR OPWC USE ONLY

PROJECT NUMBER: C_____/C_____
Local Participation _____%
OPWC Participation _____%
Project Release Date: ___/___/___
OPWC Approval: _____

APPROVED FUNDING: $_____
Loan Interest Rate: _____%
Loan Term: _____years
Maturity Date: _____
Date Approved: ___/___/___
SCIP Loan _____ **RLP Loan**

1.0 PROJECT FINANCIAL INFORMATION

1.1	PROJECT ESTIMATED COSTS: (Round to Nearest Dollar)		TOTAL DOLLARS	FORCE ACCOUNT DOLLARS
a.)	Basic Engineering Services:		$_____.00	
	Preliminary Design	$_____. 00		
	Final Design	$_____. 00		
	Bidding	$_____. 00		
	Construction Phase	$_____. 00		
	Additional Engineering Services *Identify services and costs below.		$_____.00	
b.)	Acquisition Expenses: Land and/or Right-of-Way		$_____.00	
c.)	Construction Costs:		$ 2,142,544.00	
d.)	Equipment Purchased Directly:		$_____.00	
e.)	Permits, Advertising, Legal: (Or Interest Costs for Loan Assistance Applications Only)		$_____.00	
f.)	Construction Contingencies:		$_____.00	
g.)	TOTAL ESTIMATED COSTS:		$ 2,142,544.00	

*List Additional Engineering Services here:

Service:	Cost:

1.2 **PROJECT FINANCIAL RESOURCES:**
(Round to Nearest Dollar and Percent)

		DOLLARS	%
a.)	Local In-Kind Contributions	$ .00	
b.)	Local Revenues (Hamilton County)	$ 1,071,272.00	50
c.)	Other Public Revenues	$ .00	
	ODOT	$ .00	
	Rural Development	$ .00	
	OEPA	$ .00	
	OWDA	$ .00	
	CDBG	$ .00	
	OTHER Colerain Township	$ 21,425 .00	1
	SUBTOTAL LOCAL RESOURCES:	$ 1,092,697.00	51
d.)	OPWC Funds		
	1. Grant	$ 1,049,847.00	49
	2. Loan	$ .00	
	3. Loan Assistance	$ .00	
	SUBTOTAL OPWC RESOURCES:	$ 1,049,847.00	49
e.)	TOTAL FINANCIAL RESOURCES:	$ 2,142,544.00	100%

1.3 **AVAILABILITY OF LOCAL FUNDS:**

Attach a statement signed by the Chief Financial Officer listed in section 5.2 certifying all local share funds required for the project will be available on or before the earliest date listed in the Project Schedule section.

ODOT PID# _____ Sale Date:
STATUS: (Check one)
Traditional
Local Planning Agency (LPA)
State Infrastructure Bank

2.0 PROJECT INFORMATION

If project is multi-jurisdictional, information must be consolidated in this section.

2.1 PROJECT NAME: BLUE ROCK/LIVINGSTON/GALBRAITH ROAD IMPROVEMENT

2.2 BRIEF PROJECT DESCRIPTION - (Sections A through C):

A: SPECIFIC LOCATION: *(Please see the attached location map).*
The project is located in Colerain Township. The construction limits are as follows:

From: Sheed Road **to:** Galbraith Road *(See attached location map)*

PROJECT ZIP CODE: 45251

B: PROJECT COMPONENTS:
Blue Rock Road will be widened at the intersection with Livingston Road to create a left turn lane on all four legs of the intersection. Galbraith Road will be widened to facilitate a left turn lane onto southbound Blue Rock Road. Profile and alignment changes, new curbs and drainage structures will be installed along the entire length of the project. A new traffic control system will be installed at the Blue Rock/Galbraith Road intersection. The roadway will be rehabilitated with full depth pavement repairs and a structural overlay. Salvage sections will also be resurfaced with a structural overlay. ***(Please see the attached plan sheets)***

C: PHYSICAL DIMENSIONS / CHARACTERISTICS:

Blue Rock Road - Project length is 3,171 LF (0.60 miles)
Livingston Road – North leg length is ; the south leg length is
Galbraith Road – Project length is 344 LF (0.065 miles)

Total length of project is 4,575 LF (0.87 miles) Proposed pavement will vary in width, with a minimum of 27 LF face to face of curbs.

D: DESIGN SERVICE CAPACITY:
Detail current service capacity vs. proposed service level.
Road or Bridge: Current ADT: 15,648 Year: 2006 Projected ADT: Year:
Water/Wastewater: Based on monthly usage of 7,756 gallons per household, attach current rate ordinance. Current Residential Rate: $_____ Proposed Rate: $

Stormwater: Number of households served:

2.3 USEFUL LIFE / COST ESTIMATE: Project Useful Life: 30 Years.

Attach Registered Professional Engineer's statement, with original seal and signature confirming the project's useful life indicated above and estimated cost.

3.0 REPAIR/REPLACEMENT or NEW/EXPANSION:

TOTAL PORTION OF PROJECT REPAIR/REPLACEMENT	**$ 2,142,544.00**
TOTAL PORTION OF PROJECT NEW/EXPANSION	**$ 0.00**

4.0 PROJECT SCHEDULE: *

		BEGIN DATE	END DATE
4.1	**Engineering/Design:**	11 / 30 / 05	08 / 31 / 06
4.2	**Bid Advertisement and Award:**	11 / 30 / 07	12 / 31 / 07
4.3	**Construction:**	02 / 15 / 08	06 / 30 / 09
4.4	**Right-of-Way/Land Acquisition:**	07 / 01 / 07	11 / 30 / 07

* Failure to meet project schedule may result in termination of agreement for approved projects. Modification of dates must be requested in writing by the CEO of record and approved by the commission once the Project Agreement has been executed. The project schedule should be planned around receiving a Project Agreement on or about July 1st.

5.0 APPLICANT INFORMATION:

5.1 CHIEF EXECUTIVE OFFICER

OFFICER	William W. Brayshaw
TITLE	Hamilton County Engineer
STREET	10480 Burlington Road
CITY/ZIP	Cincinnati, OH 45231
PHONE	(513) 946 - 8902
FAX	(513) 946 - 8901
E-MAIL	william.brayshaw@hamilton-co.org

5.2 CHIEF FINANCIAL OFFICER

OFFICER	Dusty Rhodes
TITLE	Hamilton County Auditor
STREET	138 East Court Street Room 304, CAB
CITY/ZIP	Cincinnati, OH 45202
PHONE	(513) 946 - 4045
FAX	(513) 946 - 4043
E-MAIL	auditor@fuse.net

5.3 PROJECT MANAGER

PROJECT MANAGER	Timothy Gilday
TITLE	Planning & Design Engineer
STREET	10480 Burlington Road
CITY/ZIP	Cincinnati, OH 45231
PHONE	(513) 946 - 8914
FAX	(513) 946 - 8901
E-MAIL	tim.gilday@hamilton-co.org

Changes in Project Officials must be submitted in writing from the CEO.

6.0 ATTACHMENTS/COMPLETENESS REVIEW:

Confirm in the blocks [ ] below that each item listed is attached.

[X] **A certified copy of the legislation by the governing body of the applicant authorizing a designated official to sign and submit this application and execute contracts. This individual should sign under 7.0, Applicant Certification, below.**

[X] **A certification signed by the applicant's chief financial officer stating all local share funds required for the project will be available on or before the dates listed in the Project Schedule section. If the application involves a request for loan (RLP or SCIP), a certification signed by the CFO which identifies a specific revenue source for repaying the loan also must be attached. Both certifications can be accomplished in the same letter.**

[X] **A registered professional engineer's detailed cost estimate and useful life statement, as required in 164-1-13, 164-1-14, and 164-1-16 of the Ohio Administrative Code. Estimates shall contain an engineer's original seal or stamp and signature.**

[ ] **A cooperation agreement (if the project involves more than one subdivision or district) which identifies the fiscal and administrative responsibilities of each participant.**

[ ] **Projects which include new and expansion components and potentially affect productive farmland should include a statement evaluating the potential impact. If there is a potential impact, the Governor's Executive Order 98-VII and the OPWC Farmland Preservation Review Advisory apply.**

[X] **Capital Improvements Report: (Required by O.R.C. Chapter 164.06 on standard form)**

[X] **Supporting Documentation: Materials such as additional project description, photographs, economic impact (temporary and/or full time jobs likely to be created as a result of the project), accident reports, impact on school zones, and other information to assist your district committee in ranking your project. Be sure to include supplements, which may be required by your *local* District Public Works Integrating Committee.**

7.0 APPLICANT CERTIFICATION:

The undersigned certifies that: (1) he/she is legally authorized to request and accept financial assistance from the Ohio Public Works Commission; (2) to the best of his/her knowledge and belief, all representations that are part of this application are true and correct; (3) all official documents and commitments of the applicant that are part of this application have been duly authorized by the governing body of the applicant; and, (4) should the requested financial assistance be provided, that in the execution of this project, the applicant will comply with all assurances required by Ohio Law, including those involving Buy Ohio and prevailing wages.

Applicant certifies that physical construction on the project as defined in the application has NOT begun, and will not begin until a Project Agreement on this project has been executed with the Ohio Public Works Commission. Action to the contrary will result in termination of the agreement and withdrawal of Ohio Public Works Commission funding of the project.

William W. Brayshaw, P.E., P.S., Hamilton County Engineer
Certifying Representative (Type or Print Name and Title)

William W. Brayshaw 9-11-06
Signature/Date Signed

County of Hamilton

WILLIAM W. BRAYSHAW, P.E.-P.S. COUNTY ENGINEER

700 COUNTY ADMINISTRATION BUILDING

138 EAST COURT STREET

CINCINNATI, OHIO 45202-1232

PHONE (513) 946-4250 FAX (513) 946-4288

STATEMENT OF USEFUL LIFE

As required by Chapter 164-1-13 of the Ohio Administrative Code, I hereby certify that the Blue Rock Road Improvement project will have a useful life of at least 30 years.

CONSTRUCTION COSTS:

The opinion of Project Construction Costs is based on current unit price experience and is subject to adjustment upon completion of detailed plans and receipt of an acceptable proposal by a qualified contractor.

William W. Brayshaw

WILLIAM W. BRAYSHAW, P.E., - P.S.
HAMILTON COUNTY ENGINEER

BLUE ROCK ROAD SHEED ROAD TO GALBRAITH ROAD					Date:-	8/23/2006	
					Prepared by:	SC/JA	
* = Contingency Item							
		ESTIMATED			EST. UNIT	ESTIMATED	
REF.	ITEM NO.	QUANTITIES		DESCRIPTION	PRICE	COST	
				ROADWAY ITEMS			
1	201	1	LUMP	Clearing And Grubbing	$10,000.00	$10,000.00	
2	201	65	EACH	Tree Removed, 18" Size	$400.00	$26,000.00	
3	201	12	EACH	Tree Removed, 30" Size	$800.00	$9,600.00	
4	201	6	EACH	Tree Removed, 48" Size	$1,500.00	$9,000.00	
5	202	400	CY	Pavement Removed, Asphalt	$15.00	$6,000.00	
6	202	1,300	FT	Curb Removed	$5.00	$6,500.00	
7	202	900	FT	Pipe Removed, 24" And Under	$10.00	$9,000.00	
8	202	350	FT	Guardrail Removed	$2.00	$700.00	
9	202	60	EACH	Guardrail Post Removed	$3.00	$180.00	
10	202	50	EACH	Mailbox Removed	$50.00	$2,500.00	
11	202	3	EACH	Building Demolished	$10,000.00	$30,000.00	
12	202	1	EACH	Manhole Removed	$300.00	$300.00	
13	202	14	EACH	Catch Basin Removed	$200.00	$2,800.00	
14	202	200	FT	Fence Removed	$2.00	$400.00	
15	203	8,404	CU YD	Excavation	$15.00	$126,060.00	
16	203	6,192	CU YD	Embankment	$15.00	$92,880.00	
17	204	16,148	SQ YD	Subgrade Compaction	$2.00	$32,296.00	
18	204	0	HOUR	Proof Rolling	$0.00	$0.00	
19	254	600	SQ YD	Pavement Planing, Asphalt Concrete	$2.00	$1,200.00	
20	254	0	SQ YD	Patching Planed Surface	$0.00	$0.00	
21	255	3,405	FT	Full Depth Pavement Sawing	$2.00	$6,810.00	
22	604	16	EACH	Monument Assembly	$550.00	$8,800.00	
23	606	50	FT	Guardrail, Type 5	$20.00	$1,000.00	**$382,026.00**
				EROSION CONTROL			
24	601	12	CU YD	Rock Channel Protection, Type C With Fabric Filter	$58.00	$667.00	
25	659	1,279	CU YD	Topsoil	$25.00	$31,975.00	
26	659	2	TON	Commercial Fertilizer	$335.00	$670.00	
27	659	3	ACRE	Lime	$45.00	$142.65	
28	659	33.0	M GAL	Water	$1.30	$42.90	
29	659	0.0	M SQ F	Mowing	$0.00	$0.00	
30	660	3,560	SQ YD	Sodding Staked	$6.00	$21,360.00	
31	660	11,789	SQ YD	Sodding Unstaked	$6.50	$76,628.50	
32	832	1	EACH	Erosion Control	$5,000.00	$5,000.00	**$136,486.05**
				PAVEMENT			
33	301	2,818	CU YD	Asphalt Concrete Base, PG64-22	$100.00	$281,800.00	
34	304	190	CU YD	Aggregate Base	$50.00	$9,500.00	
35	407	0	GALLO	Tack Coat	$0.00	$0.00	
36	407	0	GALLO	Tack Coat For Intermediate Course	$0.00	$0.00	
37	448	800	CU YD	ASPHALT CONC. TYPE 1H	$135.00	$108,000.00	
	448	800	CU.YD	ASPHALT CONC INTER. TYPE2 PG(70-22)	$130.00	$104,000.00	
38	609	9,052	FT	Curb, Type 6	$20.00	$181,040.00	
39	452	630	SQ YD	7" Portland Cement Concrete Class "C"	$80.00	$50,400.00	
40	452	125	SQ YD	8" Portland Cement Concrete Class "C"	$90.00	$11,250.00	**$745,990.00**

REF.	ITEM NO.	ESTIMATED QUANTITIES		DESCRIPTION	EST. UNIT PRICE	ESTIMATED COST	
				DRAINAGE			
41	603	120	FT	6" Conduit, Type C 707.46	$35.00	$4,200.00	
42	603	2,215	FT	12" Conduit, Type B	$50.00	$110,750.00	
43	603	760	FT	12" Conduit, Type C	$50.00	$38,000.00	
44	603	355	FT	12" Conduit, Type D	$50.00	$17,750.00	
45	603	45	FT	15" Conduit, Type B	$50.00	$2,250.00	
46	603	100	FT	15" Conduit, Type C	$60.00	$6,000.00	
47	603	87	FT	18" Conduit, Type B	$80.00	$6,960.00	
48	603	21	FT	24" Conduit, Type B	$120.00	$2,520.00	
49	603	155	FT	48" Conduit, Type B	$300.00	$46,500.00	
50		3	EACH	Yard Basin No 12	$1,500.00	$4,500.00	
51	604	8	EACH	Catch Basin, No. 3	$2,000.00	$16,000.00	
52	604	8	EACH	Catch Basin, No. 3A	$1,600.00	$12,800.00	
53	604	7	EACH	Catch Basin, No. 2-2B	$1,000.00	$7,000.00	
54		10	EACH	Catch Basin, No. 3MH	$3,250.00	$32,500.00	
55		1	EACH	Catch Basin, No. 2-6 (Modified)	$5,000.00	$5,000.00	
56	604	8	EACH	Manhole, No. 3	$2,000.00	$16,000.00	
57	604	20	EACH	Manhole Frame And Cover	$425.00	$8,500.00	
58	511	1.4	CU YD	Class C Concrete Headwall	$500.00	$720.00	
59	604	962	FT	Special Trench Drain	$60.00	$57,720.00	
60		1	EACH	Connection To Existing C.B.	$400.00	$400.00	**$396,070.00**
				MAINTENANCE OF TRAFFIC			
61	203	1100	CU YD	Excavation	$0.00	$0.00	
62	203	280	CU YD	Embankment	$0.00	$0.00	
63	410	200	CU YD	Traffic Compacted Surface, Type A Or B	$0.00	$0.00	
64	614	40	HOUR	Law Enforcement Officer With Patrol Car	$0.00	$0.00	
65	614	50	EACH	Barrier Reflector, Type B	$0.00	$0.00	
66	614	50	EACH	Object Marker, One Way	$0.00	$0.00	
67	614	0.50	MILE	Work Zone Center Line, Class I, 740.06 Type 1	$0.00	$0.00	
68	614	4.60	MILE	Work Zone Edge Line, Class I	$0.00	$0.00	
69	614	95	FT	Work Zone Stop Line, Class I, 740.06 Type 1	$0.00	$0.00	
70	614	200	CU YD	Asphalt Concrete For Maintaining Traffic	$0.00	$0.00	
71	615	Lump	SUM	Roads For Maintaining Traffic	$0.00	$0.00	
72	615	3769	SQ YD	Pavement For Maintaining Traffic, Class B	$0.00	$0.00	
73	616	50	M GAL	Water	$0.00	$0.00	
74	616	2	TON	Calcium Chloride	$0.00	$0.00	
75	614	Lump	SUM	Maintaining Traffic	$50,000.00	$50,000.00	
76	619	0	MONTH	Field Office, Type B	$0.00	$0.00	
77	623	Lump	SUM	Construction Layout Stakes	$10,000.00	$10,000.00	
78	624	Lump	SUM	Mobilization	$0.00	$0.00	**$60,000.00**
				PAVEMENT MARKING AND SIGNAGE			
79	621	216	EACH	RPM	$18.00	$3,888.00	
80	630	626	FT	Ground Mounted Support, No. 3 Post	$5.00	$3,130.00	
81	630	227.0	SQ FT	Sign, Flat Sheet	$10.00	$2,270.00	
82	630	4	EACH	Sign, Double Faced, Street Name	$90.00	$360.00	
83	630	33	EACH	Removal Of Ground Mounted Sign And Disposal	$6.00	$198.00	
84	630	22	EACH	Removal Of Ground Mounted Post Support And Dis	$10.00	$220.00	
85	630	7	EACH	Removal Of Pole Mounted Sign And Disposal	$15.00	$105.00	
86	644	1.7	MILE	Edge Line	$1,600.00	$2,720.00	
87	644	0.10	MILE	Lane Line	$750.00	$75.00	
88	644	1.10	MILE	Center Line	$2,700.00	$2,970.00	
89	644	715	FT	Channelizing Line	$2.00	$1,430.00	
90	644	307	FT	Stop Line	$6.00	$1,842.00	
91	644	447	FT	Transverse Line	$3.50	$1,564.50	
92	644	16	EACH	Lane Arrow	$75.00	$1,200.00	**$21,972.50**

REF.	ITEM NO.	ESTIMATED QUANTITIES		DESCRIPTION	EST. UNIT PRICE	ESTIMATED COST	
				SIGNAL ITEMS			
93	625	76	FT	Conduit, 2", 725.04	$8.50	$646.00	
94	625	72	FT	Trench, 24" Deep	$3.75	$270.00	
95	625	4	EACH	Pull Box, 725.08, 18"	$550.00	$2,200.00	
96	625	1	EACH	Pull Box, 725.08, 24"	$625.00	$625.00	
97	625	5	EACH	Ground Rod	$125.00	$625.00	
98	625	1	EACH	Power Service	$2,000.00	$2,000.00	
99	630	3	EACH	Sign Hanger Assembly, Span Wire	$160.00	$480.00	
100	630	36.0	SQ FT	Sign, Flat Sheet	$10.00	$360.00	
101	632	5	EACH	Vehicular Signal Head With LED Lamp Units,	$300.00	$1,500.00	
				3 Section, 12" Lens, 1-Way, As Per Plan			
102	632	1	EACH	Vehicular Signal Head With LED Lamp Units,	$1,000.00	$1,000.00	
				5 Section, 12" Lens, 1-Way, As Per Plan			
103	632	6	EACH	Covering Of Vehicular Signal Head	$20.00	$120.00	
104	632	4	EACH	Detector Loop	$850.00	$3,400.00	
105	632	2	EACH	Loop Detector Unit, 2 Channel	$125.00	$250.00	
106	632	330	FT	Messenger Wire, 7 Strand, 3/8" Diameter With Acc	$5.25	$1,732.50	
107	632	681	FT	Signal Cable, 7 Conductor, No. 14 Awg	$1.50	$1,021.50	
108	632	4	EACH	Strain Pole Foundation	$2,000.00	$8,000.00	
109	632	817	FT	Loop Detector Lead In Cable	$1.05	$857.85	
110	632	63	FT	Power Cable, 2 Conductor, No. 6 Awg	$2.50	$157.50	
111	632	4	EACH	Strain Pole, Type TC-81.10, Design 10	$4,100.00	$16,400.00	
112	632	1	EACH	Removal Of Traffic Signal Installation And Disposal	$1,500.00	$1,500.00	
113	633	1	EACH	Controller Unit, Type 170E, With Cabinet Type 332	$8,500.00	$8,500.00	
114	633	1	EACH	Cabinet Riser	$375.00	$375.00	
115	633	1	EACH	Cabinet Foundation	$900.00	$900.00	
116	633	1	EACH	Controller Work Pad	$150.00	$150.00	
		1.0		SIGNAL WORK	$46,929.65	$46,929.65	**$100,000.00**
				SUBTOTAL			**$1,842,544.55**
				Project Contingency (15%)			**$300,000.00**
				TOTAL			**$2,142,544.55**

County of Hamilton

WILLIAM W. BRAYSHAW, P.E.-P.S. COUNTY ENGINEER

700 COUNTY ADMINISTRATION BUILDING

138 EAST COURT STREET

CINCINNATI, OHIO 45202-1232

PHONE (513) 946-4250 FAX (513) 946-4288

September 8, 2006

STATUS OF FUNDS REPORT

Project: **BLUE ROCK ROAD IMPROVEMENT PROJECT**

This is to certify that the sum of $1,071,272.00 is available as the local matching funds in connection with the application for State Capital Improvement Program Funds for the above-mentioned project.

The source of the local match will be Road and Bridge Funds. Local matching funds will be encumbered and certified upon completion of the Project Agreement with the Ohio Public Works Commission.

Chief Financial Officer: 

DUSTY RHODES
HAMILTON COUNTY AUDITOR

Colerain Township

Trustees
KEITH N. CORMAN
BERNARD A. FIEDELDEY JR.
JEFF RITTER
Fiscal Officer
HEATHER E. HARLOW
Administrator
DAVID L. FOGLESONG

ADMINISTRATION
4200 Springdale Road • Colerain Township, Ohio 45251-1419
(513) 385-7500 • FAX (513) 245-6503 • www.coleraintwp.org

September 13, 2006

Mr. William W. Brayshaw, PE-PS
Hamilton County Engineer
700 County Administration Building
138 East Court Street
Cincinnati, Ohio 45202-1232

Re: Blue Rock Road application for OPWC funds

Dear Mr. Brayshaw, Bill

I am pleased to inform you that the Board of Trustees has approved your request for additional funding for the Blue Rock Road OPWC project. During last evening's Board meeting a unanimous vote approved the requested $21,425.00 for the above-mentioned OPWC application. The Board of Trustees believes this is a good project that will aid in the safety of our residents and the traveling public using Blue Rock Road.

If you are successful in having this projected approved by the District 2 Integrating Committee and ultimately by the Ohio Public Works Commission please inform me of the method in which the funds will need to be transferred to your project account. It is my understanding that these funds need not be encumbered until such time as the project is prepared for bid, sometime in mid to late 2007. If this is an incorrect assumption, please let me know.

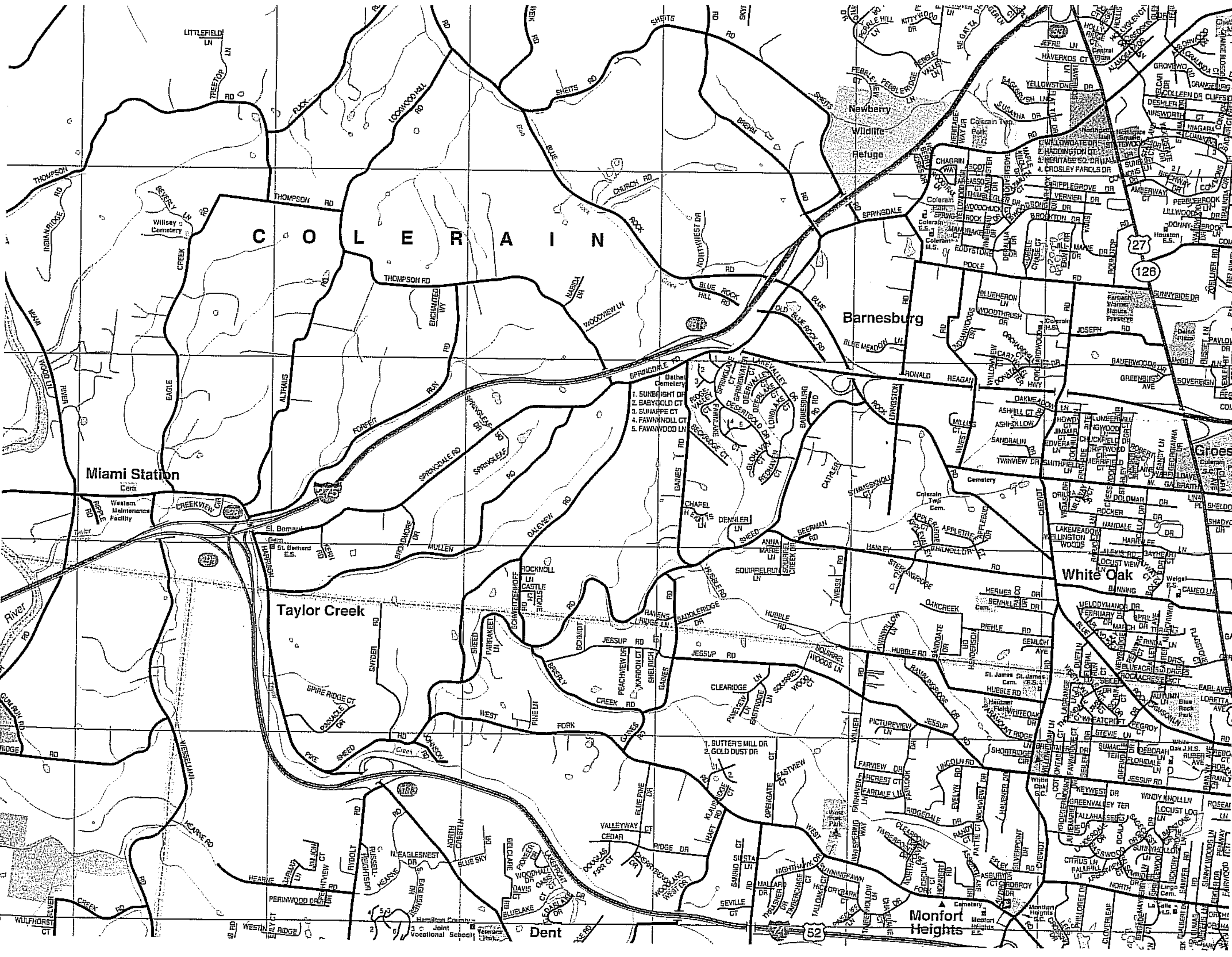
The Board wishes to thank you for your continued support of roadway safety and road improvement projects in Colerain Township.

Sincerely,

David

David L. Foglesong
Township Administrator

c. Board of Trustees
Bruce McClain, PW Director



COLERAIN
Miami Station
Taylor Creek
Barnesburg
White Oak
Monfort Heights
Dent
Newberry Wildlife Refuge

County of Hamilton

WILLIAM W. BRAYSHAW, P.E.-P.S. COUNTY ENGINEER

700 COUNTY ADMINISTRATION BUILDING

138 EAST COURT STREET

CINCINNATI, OHIO 45202-1232

PHONE (513) 946-4250 FAX (513) 946-4288

CERTIFICATION OF TRAFFIC COUNT

As required by the District 2 Integrating Committee, I hereby certify that the traffic counts herein attached to the **Blue Rock Road Improvement** project application are a true and accurate count done by the Hamilton County Engineer's Office, Traffic Division.

William W. Brayshaw

WILLIAM W. BRAYSHAW, P.E.- P.S.
HAMILTON COUNTY ENGINEER

A RESOLUTION AUTHORIZING THE COUNTY ENGINEER TO PREPARE AND SUBMIT AN APPLICATION TO PARTICIPATE IN THE OHIO PUBLIC WORKS COMMISSION (OPWC) STATE CAPITAL IMPROVEMENT AND/OR LOCAL TRANSPORTATION IMPROVEMENT PROGRAM(S) AND TO EXECUTE CONTRACTS AS REQUIRED.

BY THE BOARD:

WHEREAS, the State Capital Improvement Program and the Local Transportation Improvement Program both provide financial assistance to political subdivisions for capital improvements to public infrastructure; and

WHEREAS, the County of Hamilton, State of Ohio, is planning to make capital improvements Blue Rock Road, Dry Fork Road, Galbraith Road, Kenwood Road, Loveland Madeira Road, Miles Road, Rapid Run Road, Remington Road, Winton Road and Sewer No.5787 and "550-700 Storage and Treatment Facility; and

WHEREAS, the infrastructure improvement herein above described is considered to be a priority need for the community and is a qualified project under the OPWC programs.

NOW, THEREFORE BE IT RESOLVED by the Board of County Commissioners of Hamilton County, State of Ohio as follows:

SECTION I

The Hamilton County Engineer, William W. Brayshaw, P.E.-P.S., is hereby authorized to apply to the OPWC for funds as described above.

SECTION II

The Hamilton County Engineer, William W. Brayshaw, P.E.-P.S., is further authorized to enter into any agreements as may be necessary and appropriate for obtaining this financial assistance.

SECTION III

It is found and determined that all formal action of this Board of Hamilton County Commissioners concerning or related to the adoption of this resolution were adopted in an open meeting of this Board of Hamilton County Commissioners and all deliberations of this Board of Hamilton County Commissioners and any of its committees, if any, that resulted in such formal actions were adopted in meetings open to the public, in compliance with all applicable legal requirements of the Ohio Revised Code.

This resolution shall be in full force and effect from and immediately after its adoption.

BE IT RESOLVED that the Clerk of this Board be, and she is hereby authorized and directed to certify a copy of this Resolution to the County Engineer, County Auditor, County Recorder and Hamilton County Regional Planning Commission.

ADOPTED at a regular meeting of the Board of County Commissioners of Hamilton County, Ohio this 20th day of September, 2006.

Mr. DeWine, AYE Mr. Heimlich, ABSENT EXCUSED Mr. Portune, AYE

VOL 703
SEP 20 2006
IMAGE 1758

CERTIFICATE OF CLERK

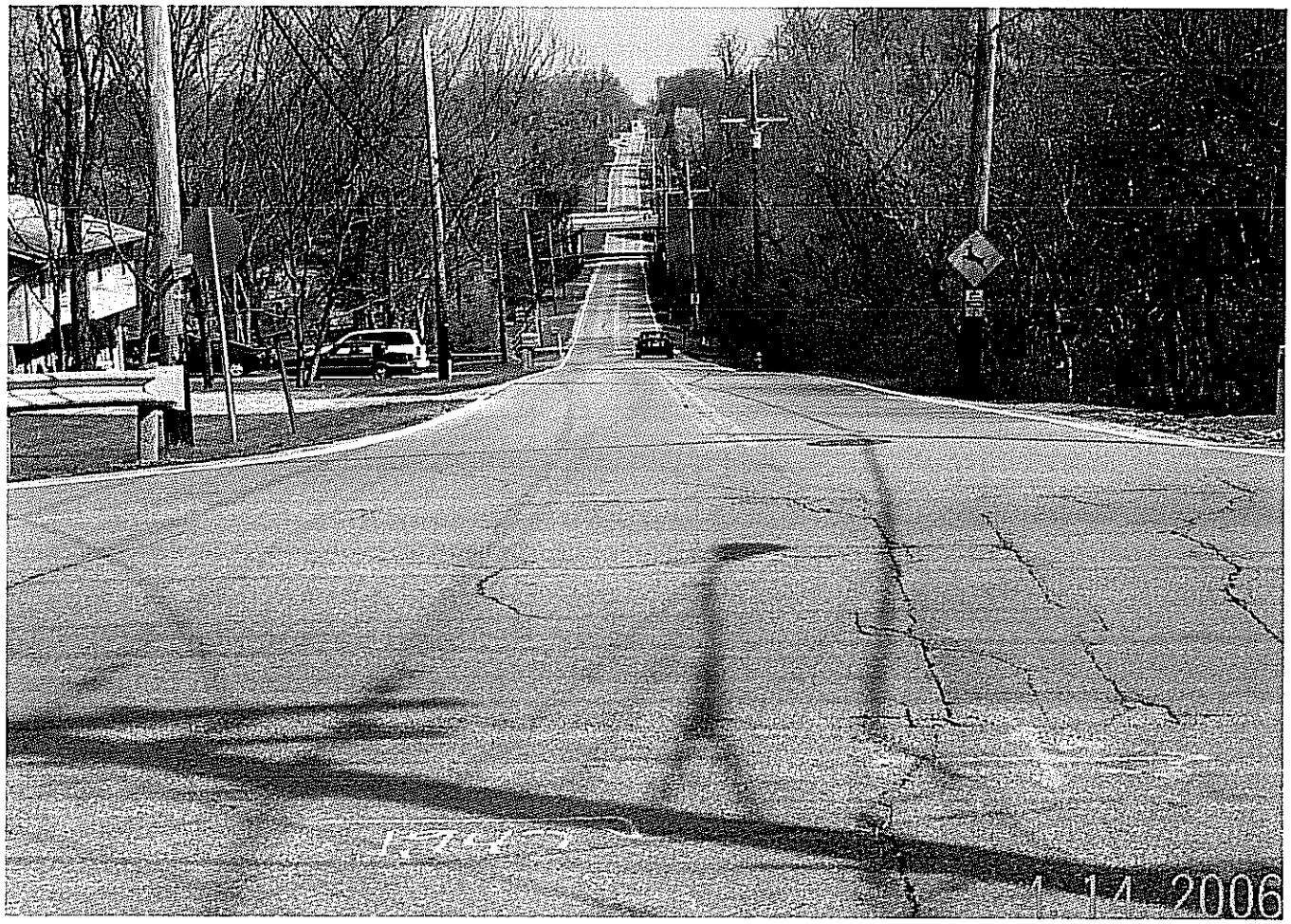
IT IS HEREBY CERTIFIED that the foregoing is a true and correct transcript of a Resolution adopted by this Board of County Commissioners of Hamilton County, Ohio, this 20th day of September, 2006.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Official Seal of the Office of the County Commissioners of Hamilton County, Ohio, this 20th day of September, 2006.

Jacqueline Panioto, County Clerk
Board of County Commissioners
Hamilton County, Ohio


4 14 2006


4 14 2006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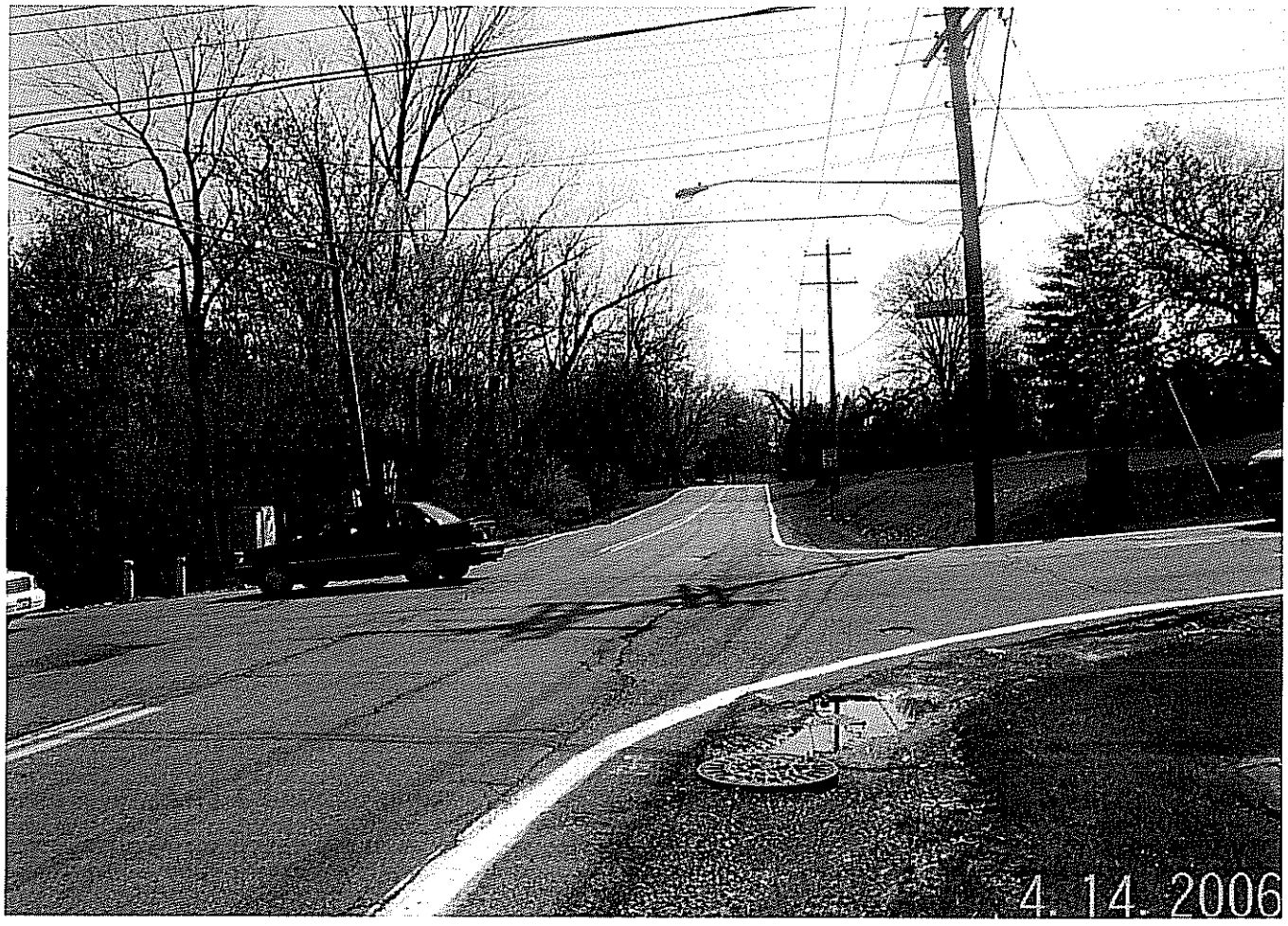
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4.14.2006


EAST
RONALD
REAGAN
HWY.
4.14.2006


4-14-2006


4. 14. 2006


4.14.2006


4.14.2006


4475


STOP
SPEED LIMIT
35
4. 14. 2006

PAVEMENT CORES

WINTON, GALBRAITH, KENWOOD & BLUE ROCK ROADS

HAMILTON COUNTY, OHIO

Prepared for: County of Hamilton
Hamilton County Engineers
Thelen Project No.: 060699NE

THELEN ASSOCIATES, INC.
Geotechnical • Testing Engineers

○ 1398 Cox Avenue / Erlanger, Kentucky 41018-1002 / 859-746-9400 / Fax 859-746-9408
☑ 2140 Waycross Road / Cincinnati, Ohio 45240-2719 / 513-825-4350 / Fax 513-825-4756
www.thelenassoc.com

Blue Rock Road

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www.thelenassoc.com

August 18, 2006
Revised: August 23, 2006

County of Hamilton
Hamilton County Engineer
223 W. Galbraith Road
Cincinnati, Ohio 45215

Attention: Mr. Eric Beck, P.E.

Re: Pavement Cores
Winton, Galbraith, Kenwood &
Blue Rock Roads
Hamilton County, Ohio

Ladies and Gentlemen:

Contained herein are the results of pavement cores performed along Winton, Galbraith, Kenwood & Blue Rock Roads in Hamilton County, Ohio. This work was requested and authorized by Mr. Eric Beck, P.E., County of Hamilton, during a telephone conversation with our Ms. Nancy M. Goins on July 11, 2006.

The purpose of our services were to sample the depth and composition of the existing pavement along the specific sections of these project streets. An evaluation of the soil subgrade was not requested.

The pavement core locations were determined by the County of Hamilton and staked in the field by their office. The pavement cores were offset as required due to overhead power lines. Ground surface elevations were not determined. The location of the cores are noted on the Pavement Core Summaries enclosed with this report.

The cores were obtained by our personnel by coring through the existing pavement utilizing 3-1/4, 4 and 6 inch diameter diamond bit core barrels. The recovered samples were marked in the field for future identification and field measurements of the total pavement depth was documented. Mr. Pat Ashcraft, County of Hamilton, was present during the coring process and recorded the pavement cores with the use of a camera.

Upon receipt of the samples to our Construction Materials Laboratory, the samples were measured and reviewed for composition. The Pavement Core Summaries were developed at this time.

For Phase I of Winton Road, which extends from North Bend Road to Denier Place included Pavement Cores 1, 2, 3, 9, 10 and 11. Pavement Cores 1 and 2 encountered full depth asphalt pavement consisting of 7-1/2 and 5-1/4 inches, respectively. Pavement Cores 3, 9, 10 and 11 encountered 3 to 5-1/2 inches of asphaltic concrete underlain by 7-7/8 to 10-7/8 inches of Portland cement concrete. Total pavement thickness ranged between 5-1/4 inches in Pavement Core 2 to 15-7/8 inches in Pavement Core 10.

For Phase II of Winton Road between North Hill Lane and Reynard Avenue, Pavement Cores 4 through 8 and 12 through 18 were performed. These pavement cores encountered 3-1/2 to 12-1/2 inches of asphaltic concrete underlain by 7 to 15 inches of Portland cement concrete. Total pavement thicknesses ranged between 11-1/4 inches in Pavement Core 7 to 27-1/2 inches in Pavement Core 18.

For Galbraith Road between Winton Road and Bobolink Drive eight (8) cores were performed. These cores encountered 1-1/2 to 2-7/8 inches of asphaltic concrete underlain by 7 to 9 inches of Portland cement concrete. Total pavement thicknesses ranged between 9-1/4 inches in Pavement Core 4 to 11-3/4 inches in Pavement Core 6.

For Kenwood Road between Montgomery Road to Euclid Road four (4) pavement cores were performed. Pavement Cores 2 and 3 encountered 15 inches and 12 inches of full-

depth asphalt pavement, respectively. Pavement Cores 1 and 4 encountered 4 inches and 3-1/2 inches of asphaltic concrete underlain by 8 inches and 6 inches of Portland cement concrete, respectively. Total pavement thicknesses ranged between 9-1/2 inches in Pavement Core 4 to 15 inches in Pavement Core 2.

For Blue Rock Road between Galbraith Road and Sheed Road four (4) pavement cores were performed. These pavement cores encountered full-depth asphalt pavement ranging from 10-1/4 inches in Pavement Core 4 to 13 inches in Pavement Core 3.

Enclosed with this report are the Pavement Core Summaries, which provide additional information, concerning the condition of the pavement core and composition of the pavements encountered. The pavement cores are available for review in our Forest Park, Ohio office.

For pavements which are underlain by fractured to disintegrated concrete, the pavement section will have two (2) major issues. The first issue is that the concrete will continue to disintegrate with each freeze/thaw cycle. This weakening of the rigid pavement beneath the flexible pavement will result in continued and worsening reflective cracking within the asphalt overlays.

The second issue is that the surface drainage and runoff will not be completely controlled and diverted to the storm sewer inlets. Water will filter down through any unsealed fractured pavement and pond on the clayey subgrade. This water is likely not outletted by gravity with a crowned subgrade and granular base which will result in a saturation and softening of the subgrade soils. This condition will become more pronounced once the rigid concrete pavement has fractured to the point that it is not dissipating the loads as originally designed, and will ultimately result in rutted pavements and depressions in areas where the subgrade soils have become weakened. These soft saturated soils will also be an issue if the existing pavement sections are to be removed. The subgrade soils will be above their optimum moisture contents and will be required to be moisture-

conditioned or removed and replaced to prepared a suitable soil subgrade for placing new pavements.

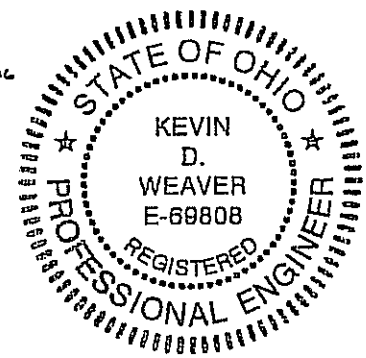
These issues will result in the pavement deterioration to accelerate to their design service life. These issues can only be remediated with a replacement of a new pavement section.

We appreciate the opportunity to be of service to you on this project. Should you have any questions concerning the data presented, or if we may be of additional assistance, please do not hesitate to contact us.

Respectfully submitted,
THELEN ASSOCIATES, INC.

Kevin D. Weaver 8-24-06

Kevin D. Weaver, P.E.
Staff/Materials Engineer



KDW:ph
060699NE

Enclosure: Pavement Core Summary, Winton Road Phase I
Pavement Core Summary, Winton Road Phase II
Pavement Core Summary, Galbraith Road
Pavement Core Summary, Kenwood Road
Pavement Core Summary, Blue Rock Road

Copies submitted: 2 - Client

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COUNTY OF HAMILTON
PAVEMENT CORES
WINTON, GALBRAITH, KENWOOD
& BLUE ROCK ROADS
HAMILTON COUNTY, OHIO
060699NE

PAVEMENT CORE SUMMARY
BLUE ROCK ROAD

Core No. 1 Northbound lane in front of 4695 Blue Rock Road
11-1/2" Asphaltic Concrete: 5 apparent courses

Total Pavement Thickness: 11-1/2"

Core No. 2 Southbound lane in front of 4569 Blue Rock Road
12" Asphaltic Concrete: 4 apparent courses for intact top 9-1/2", bottom 2-1/2" disintegrated
8" Granular Base: fine to coarse sand and crushed limestone

Total Pavement Thickness: 12"

Core No. 3 Northbound lane in front of 4450 Blue Rock Road
13" Asphaltic Concrete: 7 apparent courses

Total Pavement Thickness: 13"

Core No. 4 Southbound lane in front of 4320 Blue Rock Road.
10-1/4" Asphaltic Concrete: 5 apparent courses

Total Pavement Thickness: 10-1/4"

Key of Terms
Fractured: Generally intact, few random cracks
Heavily Fractured: Generally cracked into several pieces
Disintegrated: Broken to aggregate size with some matrix remaining

ADDITIONAL SUPPORT INFORMATION

For Program Year 2007 (July 1, 2007 through June 30, 2008), jurisdictions shall provide the following support information to help determine which projects will be funded. Information on this form must be accurate, and where called for, based on sound engineering principles. Documentation to substantiate the individual items, as noted, is required. The applicant should also use the rating system and its' addendum as a guide. The examples listed in this addendum are not a complete list, but only a small sampling of situations that may be relevant to a given project.

IF YOU ARE APPLYING FOR A GRANT, WILL YOU BE WILLING TO ACCEPT A LOAN IF ASKED BY THE DISTRICT? __X__YES ____NO (ANSWER REQUIRED)
Note: Answering "Yes" will not increase your score and answering "NO" will not decrease your score.

1) What is the physical condition of the existing infrastructure that is to be replaced or repaired?
Give a statement of the nature of the deficient conditions of the present facility exclusive of capacity, serviceability, health and/or safety issues. If known, give the approximate age of the infrastructure to be replaced, repaired, or expanded. Use documentation (if possible) to support your statement. Documentation may include (but is not limited to): ODOT BR86 reports, pavement management condition reports, televised underground system reports, age inventory reports, maintenance records, etc., and will only be considered if included in the original application. Examples of deficiencies include: structural condition; substandard design elements such as widths, grades, curves, sight distances, drainage structures, etc.

The existing condition of Blue Rock Road within the project limits is poor. As per the attached 2001 Blue Rock Road Corridor Study pages, the pavement condition is fair to poor in this section of Blue Rock Road, and 20% of pavement area will require extensive full depth repair. The remaining section needs to be resurfaced with a structural overlay.

2) How important is the project to the safety of the Public and the citizens of the District and/or service area?
Give a statement of the projects effect on the safety of the service area. The design of the project is intended to reduce existing accident rate, promote safer conditions, and reduce the danger of risk, liability or injury. (Typical examples may include the effects of the completed project on accident rates, emergency response time, fire protection, and highway capacity.) Please be specific and provide documentation if necessary to substantiate the data. The applicant must demonstrate the type of problems that exist, the frequency and severity of the problems and the method of correction.

The safety at both intersections of the project will be markedly improved by the adjustment of profile grades and resulting improved sight distances. The addition of turn lanes and upgraded traffic control will reduce the opportunity for rear-end and angle type accidents. From 2001 through 2005 there have been 47 accidents at this intersection. Accident types include, "Angle", "Head-on", "Rear-End", "Failure to control", and "Left-Turn" incidents. The addition of left-turn lanes will significantly reduce the likelihood of many of these type accidents from occurring. LIVINGSTON

There are also significant profile and alignment changes that the project will alleviate. The terrain of the area is "rolling" and creates low spots that hinder sight distance. The profile changes will give better sight distance for both motorists on the roadway, as well as residents entering/leaving driveways, improving safety. Better alignment of the roadway will also improve safety by decreasing driver error. According to a 2001 Corridor Study of Blue Rock Road, the sight distance at the intersections of both Blue Rock/Livingston and Blue Rock/Galbraith is insufficient and does not meet minimum standards. The stopping sight distance at these intersections do not meet 35 MPH, which is the current speed limit. There are eight (8) horizontal curves and four (4) horizontal deflections on this section of Blue Rock Road. These curves have deficient curve widening and superelevation to meet the design requirements for the posted speed limit of 35 MPH. ***(Please see the attached sheets from the Corridor Study)***

A new traffic control system will be installed at the Blue Rock/Galbraith Road intersection. There have been 20 accidents from 2001 through 2005 at this intersection. Rear-end and left turn crashes are the most common. This project will decrease the chances of these type accidents by providing more capacity at the intersection, widening existing lanes, and improving the radius returns. ***(Please see the attached plan sheets, corridor study, and accident summaries)*** GAL.

3) How important is the project to the health of the Public and the citizens of the District and/or service area?
Give a statement of the projects effect on the health of the service area. The design of the project will improve the overall condition of the facility so as to reduce or eliminate potential for disease, or correct concerns regarding the environmental health of the area. (Typical examples may include the effects of the completed project by improving or adding storm drainage or sanitary facilities, replacing lead jointed water lines, etc.). Please be specific and provide documentation if necessary to substantiate the data. The applicant must demonstrate the type of problems that exist, the frequency and severity of the problems and the method of correction.

There are no significant health issues involved with this project.

4) Does the project help meet the infrastructure repair and replacement needs of the applying jurisdiction?

The jurisdiction must submit a listing in priority order of the projects for which it is applying. Points will be awarded on the basis of most to least importance.

Priority 1 Winton Road Improvements Phase II

Priority 2 Galbraith Road Improvement

Priority 3 Blue Rock Road Improvement

Priority 4 Kenwood Road Improvement

Priority 5 Winton Road Improvements Phase I

5) To what extent will the user fee funded agency be participating in the funding of the project?

(example: rates for water or sewer, frontage assessments, etc.).

_____

_____

_____

6) Economic Growth – How will the completed project enhance economic growth

Give a statement of the projects effect on the economic growth of the service area (be specific).

The proposed project will have a minimal impact on economic growth in the immediate area.

7) Matching Funds - LOCAL

The information regarding local matching funds is to be filed by the applicant in Section 1.2 (b) of the Ohio Public Works Association's "Application For Financial Assistance" form.

8) Matching Funds - OTHER

The information regarding local matching funds is to be filed by the applicant in Section 1.2 (c) of the Ohio Public Works Association's "Application For Financial Assistance" form. If MRF funds are being used for matching funds, the MRF application must have been filed by August 6 of this year for this project with the Hamilton County Engineer's Office. List below, the source(s) of all "other" funding.

1% - Colerain Township

9) Will the project alleviate serious capacity problems or hazards or respond to the future level of service needs of the district?

Describe how the proposed project will alleviate serious capacity problems or hazards (be specific).

The current configuration of the intersection of Blue Rock Road and Livingston Road operates with a stop situation on Livingston. The level of service is C with an intersection delay of 18.6 sec. The improvements being made are not being done directly to improve the LOS. Sight distance is the main concern of the intersection as can be seen by the large amount of crashes at this intersection.

The proposed improvements improve the level of service from a C to B immediately after construction. With no improvements being done the level of service drops to an F in 2025. With the proposed improvements the level of service will remain at C for the year 2025.

See the attached capacity analysis, summary of LOS and corridor study report.

For roadway betterment projects, provide the existing and proposed Level of Service (LOS) of the facility using the methodology outlined within AASHTO'S "Geometric Design of Highways and Streets" and the 1985 Highway Capacity Manual.

Existing LOS F Proposed LOS C

If the proposed design year LOS is not "C" or better, explain why LOS "C" cannot be achieved.

Blue Rock/Livingston

	Existing Traffic/Existing Geometrics		Existing Traffic/Proposed Geometrics	
	Intersection LOS	Intersection Delay	Intersection LOS	Intersection Delay
2005	C	18.6	B	12.3
2025	F	151.8	C	23.9

10) If SCIP/LTIP funds are granted, when would the construction contract be awarded?

If SCIP/LTIP funds are awarded, how soon after receiving the Project Agreement from OPWC (tentatively set for July 1 of the year following the deadline for applications) would the project be under contract? The Support Staff will review status reports of previous projects to help judge the accuracy of a jurisdiction's anticipated project schedule.

Number of months 6

a.) Are preliminary plans or engineering completed? Yes X No _____ N/A _____

b.) Are detailed construction plans completed? Yes X No _____ N/A _____

c.) Are all utility coordination's completed? Yes _____ No X N/A _____

d.) Are all right-of-way and easements acquired (if applicable)? Yes _____ No X N/A _____

If no, how many parcels needed for project? ? Of these, how many are: Takes _____

Temporary _____

Permanent _____

For any parcels not yet acquired, explain the status of the ROW acquisition process for this project.

Once funding is secured, Hamilton County will pursue the establishment of the project that permits appropriation to acquire the needed parcels if necessary. A neutral party will appraise each parcel and R/W agents will meet with owners. If negotiations are not successful, a court case will be filed and the property acquired by appropriation.

e.) Give an estimate of time needed to complete any item above not yet completed. 12 months.

11) Does the infrastructure have regional impact?

Give a brief statement concerning the regional significance of the infrastructure to be replaced, repaired, or expanded.
This section of Blue Rock Road is an urban collector beginning at East Miami River Road in Colerain Township at the west to Colerain Avenue in Cincinnati in the East. Galbraith Road is on the longest roads in Hamilton County, extending from Blue Rock Road in Colerain Township to SR 126 in Symmes Township. It intersects with US 27 (Colerain Avenue), US 127 (Hamilton Avenue), SR 4 (Vine Street), US 42 (Reading Road), SR 126 (Ronald Reagan Highway), and US 22 (Montgomery Road).

12) What is the overall economic health of the jurisdiction?

The District 2 Integrating Committee predetermines the jurisdiction's economic health. The economic health of a jurisdiction may periodically be adjusted when census and other budgetary data are updated.

13) Has any formal action by a federal, state, or local government agency resulted in a partial or complete ban of the usage or expansion of the usage for the involved infrastructure?

Describe what formal action has been taken which resulted in a ban of the use of or expansion of use for the involved infrastructure? Typical examples include weight limits, truck restrictions, and moratoriums or limitations on issuance of building permits, etc. The ban must have been caused by a structural or operational problem to be considered valid. Submission of a copy of the approved legislation would be helpful.
NO BAN

Will the ban be removed after the project is completed? Yes _____ No _____ N/A X

14) What is the total number of existing daily users that will benefit as a result of the proposed project?

For roads and bridges, multiply current Average Daily Traffic (ADT) by 1.20. For inclusion of public transit, submit documentation substantiating the count. Where the facility currently has any restrictions or is partially closed, use documented traffic counts prior to the restriction. For storm sewers, sanitary sewers, water lines, and other related facilities, multiply the number of households in the service area by 4. User information must be documented and certified by a professional engineer or the jurisdictions' C.E.O.

Traffic: ADT 15,648 X 1.20 = 18,777 Users – Blue Rock Road

ADT 11,000 X 1.20 = 11,430 Users – Livingston Road

ADT 11,000 X 1.20 = 11,430 Users – Galbraith Road

TOTAL NO. OF USERS = 41,637

Water/Sewer: Homes _____ X 4.00 = _____ Users

15) Has the jurisdiction enacted the optional $5 license plate fee, an infrastructure levy, a user fee, or

dedicated tax for the pertinent infrastructure?

The applying jurisdiction shall list what type of fees, levies or taxes they have dedicated toward the type of infrastructure being applied for.

Optional $5.00 License Tax ____X____

Infrastructure Levy _____ Specify type _____

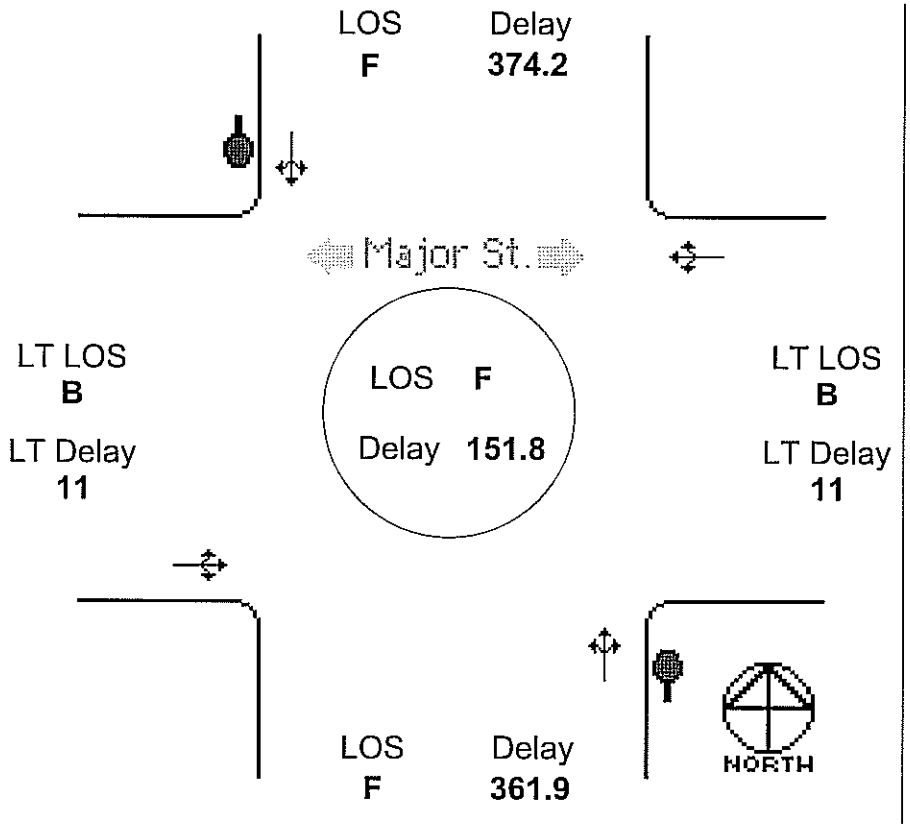
Facility Users Fee _____ Specify type _____

Dedicated Tax _____ Specify type _____

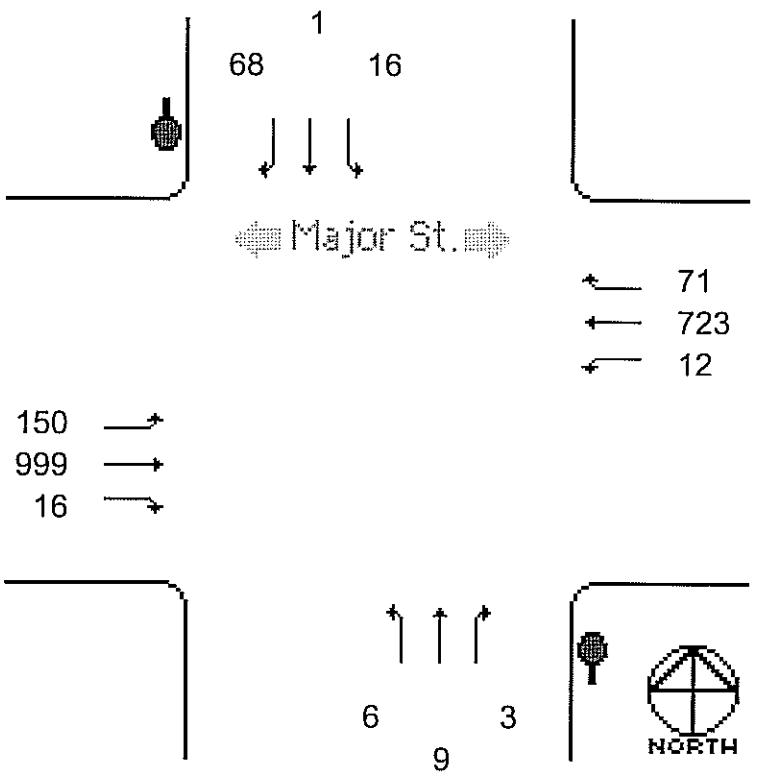
Other Fee, Levy or Tax _____ Specify type _____

2025 w/ STOP

Summary of LOS and Delays (s/veh)



Summary of Movement Volumes (veh/h)

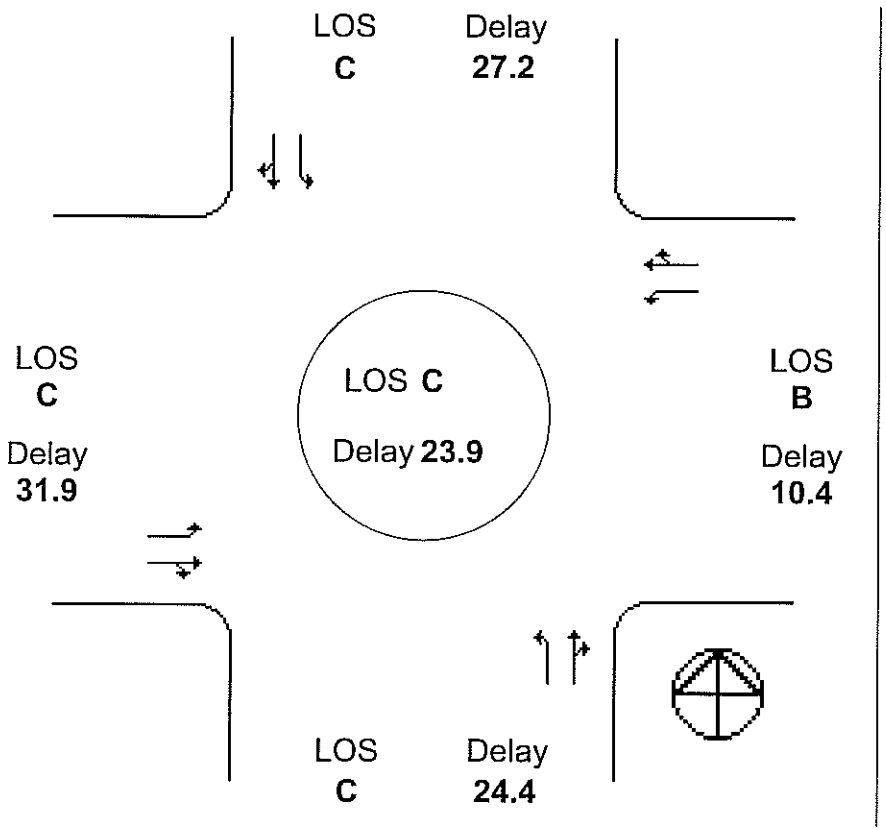


Unsignalized Intersections (TWSC) - Analysis Summary

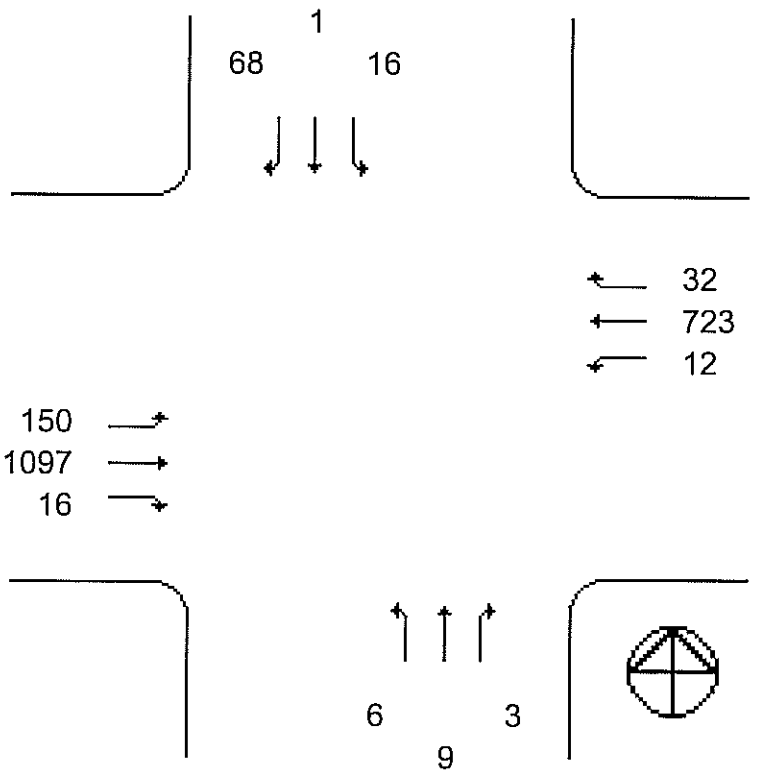
Analyst	Eric Beck	City/Location	Ham	Jurisdiction/Date	Ham 09/15/2006
Agency/Company	Hamilton County	Major Street	Blue Rock	Comments	Comments
Analysis period/Year	PM 2025	Minor Street	Livingston		

2025
w/ SIGNAL

Summary of LOS and Delays (s/veh)



Summary of Movement Volumes (veh/h)

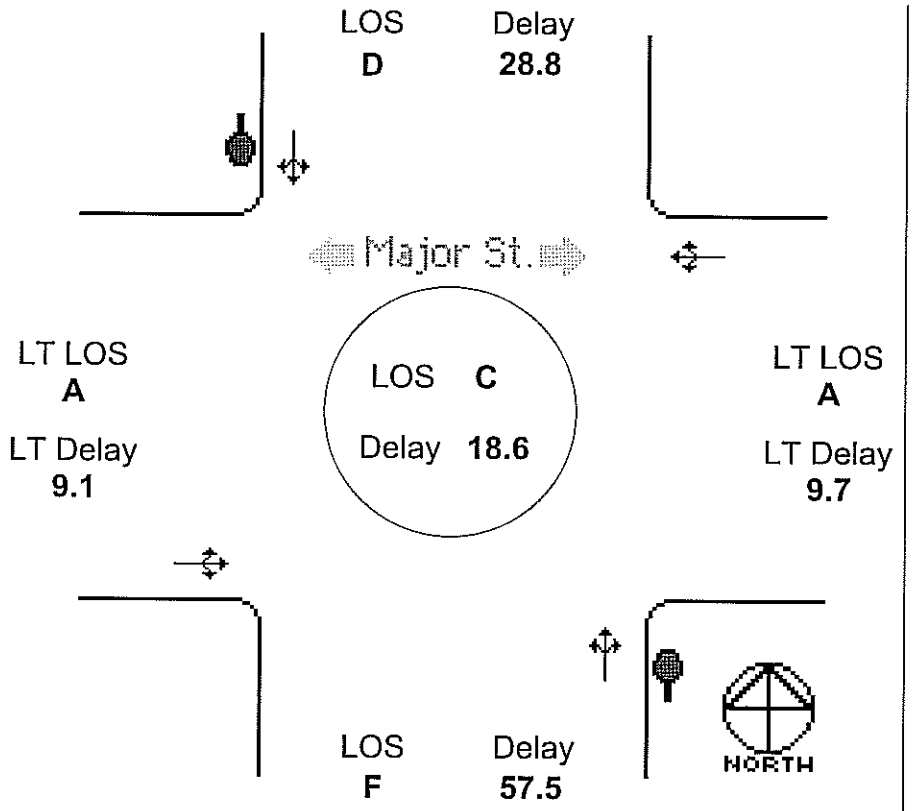


Signalized Intersections - Analysis Summary

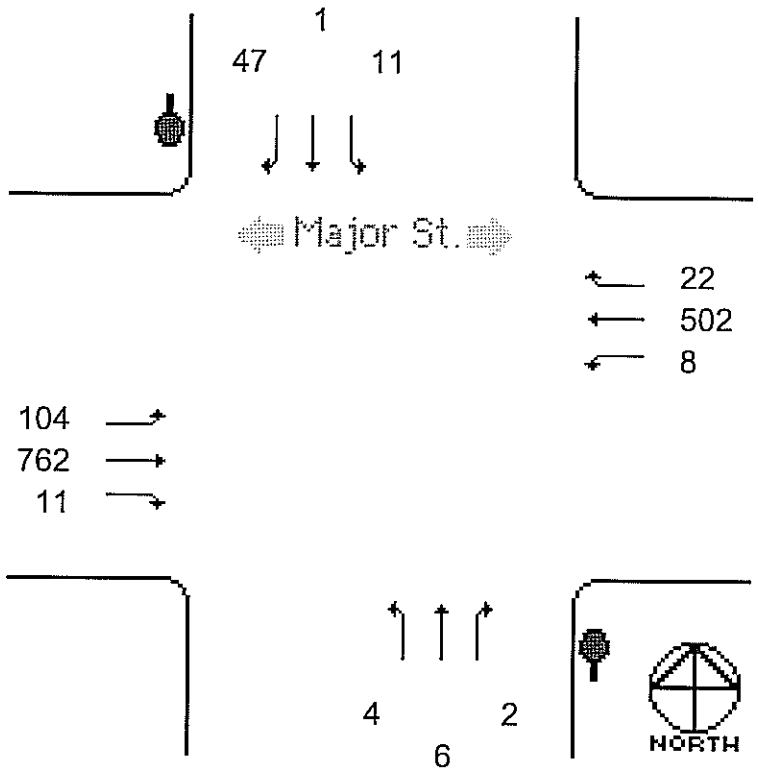
Analyst	Eric Beck	City/Location	Hamilton County	Jurisdiction/Date	Ham 09/15/2006
Agency/Company	Hamilton County	EB-WB Street	Blue Rock	Comments	Comments
Analysis period/Year	Peak Period 2025	NB-SB Street	Livingston		

2005 w/ stop

Summary of LOS and Delays (s/veh)



Summary of Movement Volumes (veh/h)

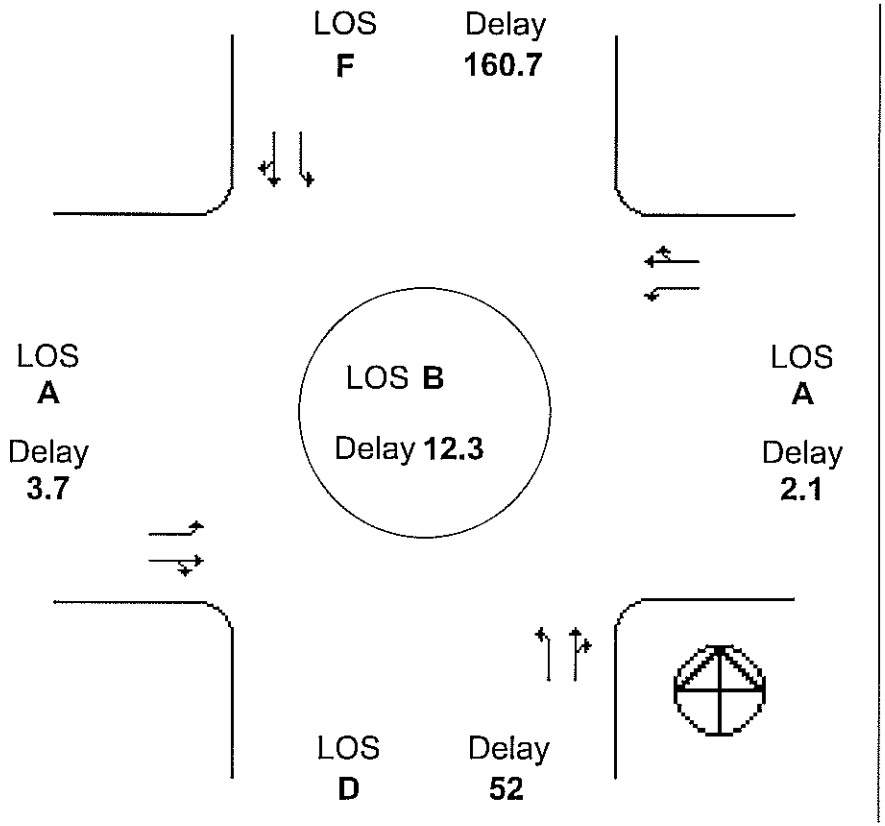


Unsignalized Intersections (TWSC) - Analysis Summary

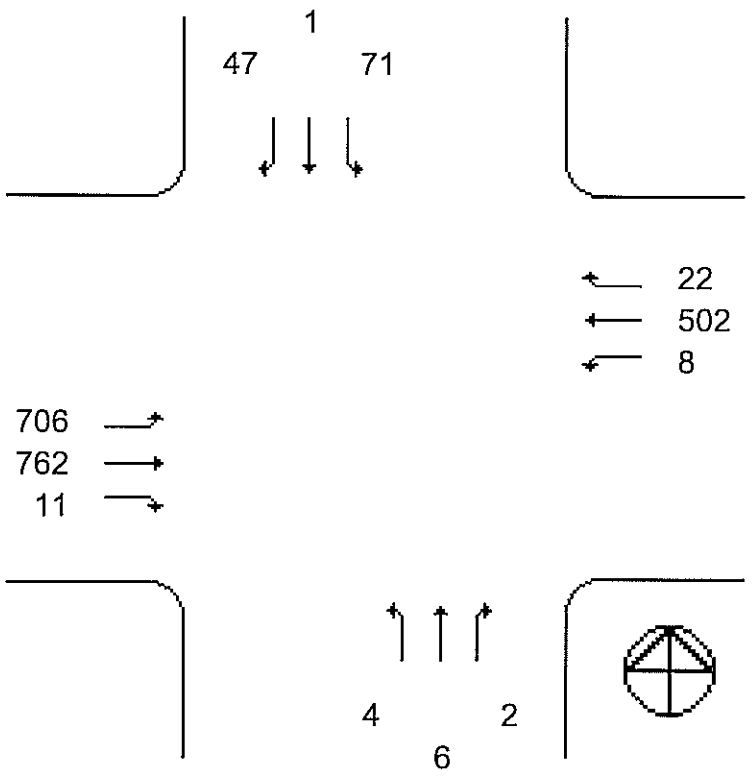
Analyst	Eric Beck	City/Location	City	Jurisdiction/Date	Jurisdiction 09/15/2006
Agency/Company	Hamilton County	Major Street	Blue Rock	Comments	existing
Analysis period/Year	PM 2005	Minor Street	Livingston		

2005
W/SIGNAL

Summary of LOS and Delays (s/veh)



Summary of Movement Volumes (veh/h)



Signalized Intersections - Analysis Summary

Analyst	Eric Beck	City/Location	Ham	Jurisdiction/Date	Ham 09/15/2006
Agency/Company	Hamilton County	EB-WB Street	Blue Rock	Comments	With improvements
Analysis period/Year	PM 2005	NB-SB Street	Livingston		

2025

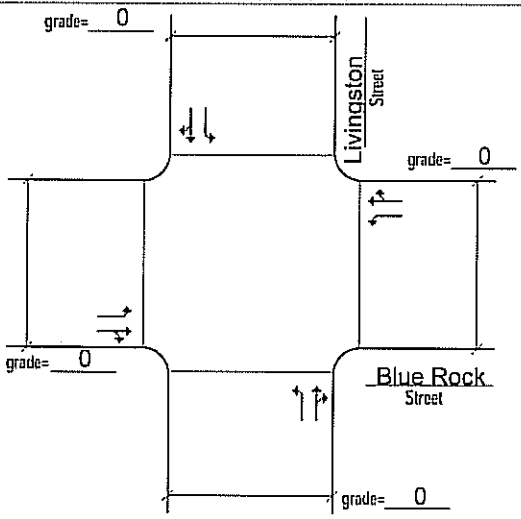
PROPOSED GEOMETRICS

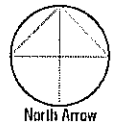
CHAPTER 16 - INPUT WORKSHEET

General Information

Analyst	Eric Beck	Jurisdiction/Date	Ham 09/15/2006
Agency or Company	Hamilton County	Intersection	Hamilton County
Analysis Period/Year	Peak Period 2025	Area Type	☐ CBD ☑ Other
Comment	Comments		

Intersection Geometry





Signal type: Pretimed
Analysis duration: 0.25 h

	EB			WB		
Lane group	L	TR		L	TR	
No. of lanes	1	1		1	1	
Avg. lane width (ft)	12.00	12.00		12.00	12.00	
Pretimed/Actuated	P	P		P	P	
Arrival Type	3	3		3	3	

	NB			SB		
Lane group	L	TR		L	TR	
No. of lanes	1	1		1	1	
Avg. lane width (ft)	12.00	12.00		12.00	12.00	
Pretimed/Actuated	P	P		P	P	
Arrival Type	3	3		3	3	

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume, V (veh/h)	150	1097	16	12	723	32	6	9	3	16	1	68
Right turn on red (veh/h)			0			0			0			0
% heavy vehicles, % HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Start-up lost time, l_1 (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of effective green time, e (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Approach pedestrian volume, v_{ped} (p/h)	50			50			50			50		
Approach bicycle volume, v_{bic} (bicycles/h)	0			0			0			0		
Left/right side parking (Y or N)	N	/	N	N	/	N	N	/	N	N	/	N
Left/right side parking, N_m (maneuvers/h)	/			/			/			/		
Bus stopping, N_B (buses/h)	2			2			2			2		
Min. timing for pedestrians, G_p (s)	16.2			16.2			16.2			16.2		
Upstream filtering, I	1.000			1.000			1.000			1.000		

Signal Phasing Plan

	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
Timing	G = 50.0 Y = 5.0	G = 15.0 Y = 5.0	G = Y =	G = Y =	G = Y =	G = Y =	G = Y =	G = Y =

L: LT R: RT T: TH P: Ped Cycle Length, C = 75.0 s Lost time 10.0 s/cycle

CHAPTER 16 - VOLUME ADJUSTMENT AND SATURATION FLOW RATE WORKSHEET

General Information

Description/Comment Comments

Volume Adjustment

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Volume, V (veh/h)	150	1097	16	12	723	32	6	9	3	16	1	68
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adjusted flow rate, v_p = V/PHF (veh/h)	163	1192	17	13	786	35	7	10	3	17	1	74
Lane group	L	TR		L	TR		L	TR		L	TR	
Adjusted flow rate in lane group, v (veh/h)	163	1210		13	821		7	13		17	75	
Proportion of LT or RT (P_{LT} or P_{RT})	1.000	-	0.014	1.000	-	0.042	1.000	-	0.250	1.000	-	0.986
Saturation Flow Rate (see Exhibit 16-7 to determine adjustment factors)												
Base saturation flow, s_o (pc/h/ln)	1900	1900		1900	1900		1900	1900		1900	1900	
Number of lanes, N	1	1		1	1		1	1		1	1	
Lane width adjustment factor, f_w	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Heavy-vehicle adjustment factor, f_{HV}	0.980	0.980		0.980	0.980		0.980	0.980		0.980	0.980	
Grade adjustment factor, f_g	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Parking adjustment factor, f_p	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Bus blockage adjustment factor, f_{bb}	1.000	0.992		1.000	0.992		1.000	0.992		1.000	0.992	
Area type adjustment factor, f_a	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Lane utilization adjustment factor, f_{LU}	1.000	1.000		1.000	1.000		1.000	1.000		1.000	1.000	
Field Measured?												
Left-turn adjustment factor, f_{LT}	0.243	1.000		0.080	1.000		0.708	1.000		0.749	1.000	
Right-turn adjustment factor, f_{RT}	1.000	0.998		1.000	0.994		1.000	0.963		1.000	0.852	
Left-turn ped/bike adjustment factor, f_{Lpb}	0.990	1.000		0.996	1.000		0.896	1.000		0.886	1.000	
Right-turn ped/bike adjustment factor, f_{Rpb}	1.000	0.999		1.000	0.998		1.000	0.971		1.000	0.886	
Adjusted saturation flow, s (veh/h)	448	1843		148	1834		1182	1727		1237	1395	
Field Measured?												
Permitted Portion of Protected-Permitted Phase												
LT adjustment factor, f_{LT}												
LT ped/bike adjustment factor, f_{Lpb}												
Adjusted saturation flow, s												
Field Measured?												

CHAPTER 16 - CAPACITY WORKSHEET

General Information

Description/Comment Comments

Capacity Analysis

	EB		WB		NB		SB	
Lane group	L	TR	L	TR	L	TR	L	TR
Adjusted flow rate, v (veh/h)	163	1210	13	821	7	13	17	75
Saturation flow rate, s (veh/h)	448	1843	148	1834	1182	1727	1237	1395
Lost time, t_L (s), $t_L = l_1 + Y - e$	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Effective green time, g (s), $g = G + Y - t_L$	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0
Green ratio, g/C	0.667	0.667	0.667	0.667	0.200	0.200	0.200	0.200
Lane group capacity, c = s(g/C), (veh/h)	298	1229	99	1222	236	345	247	279
v/c ratio, X	0.546	0.984	0.132	0.671	0.028	0.038	0.070	0.269
Flow ratio, v/s	0.364	0.656	0.088	0.448	0.006	0.008	0.014	0.054
Critical lane group/phase (√)		✓						✓

Permitted Portion of Protected and Permitted Phasing

Lane group				
Adjusted flow rate, v (veh/h)				
Saturation flow rate, s (veh/h)				
Lost time, t_L (s), $t_L = l_1 + Y - e$				
Effective green time, g (s), $g = G + Y - t_L$				
Green ratio, g/C				
Lane group capacity, c = s(g/C), (veh/h)				
v/c ratio, X				
Flow ratio, v/s				
Critical lane group/phase (√)				

Intersection Cricial v/c Ratio

Sum of flow ratios for critical lane groups, Y_c $Y_c = \Sigma$ (critical lane groups, v/s)	0.710
Total lost time per cycle, L (s)	10.0
Critical flow rate to capacity ratio, X_c $X_c = (Y_p)(C)/(C - L)$	0.819

CHAPTER 16 - INITIAL QUE DELAY AND LOS WORKSHEET

General Information

Description/Comment Comments

Initial Queue Delay Computation

Period (i) _____
Duration, T 0.25 h
Cycle length, C 75.0 s

	EB		WB		NB		SB	
Lane group	L	TR	L	TR	L	TR	L	TR
Initial queue, Q_b (veh)	0	0	0	0	0	0	0	0
Green ratio, g/C	0.667	0.667	0.667	0.667	0.200	0.200	0.200	0.200
v/c ratio, X X = v/c	0.546	0.984	0.132	0.671	0.028	0.038	0.070	0.269
Adjusted lane group capacity, c (veh/h)	298	1229	99	1222	236	345	247	279
Duration of unmet demand in T (h) $t = \min\left[T, \frac{Q_b}{c[1 - \min(1,X)]}\right]$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Case	1	1	1	1	1	1	1	1
Delay paramater, u $u = 1 - \frac{cT}{Q_b}\left[1 - \min(1,X)\right]$	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial queu delay, d_3 (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform delay, d_1 (s)								

Lane Group Capacity, Control Delay, and LOS Determination

Lane group	L	TR	L	TR	L	TR	L	TR
Adjusted flow rate, v (veh/h)	163	1210	13	821	7	13	17	75
Lane group capacity, c (veh/h)	298	1229	99	1222	236	345	247	279
v/c ration, X = v/c	0.546	0.984	0.132	0.671	0.028	0.038	0.070	0.269
Total green ratio, g/C	0.667	0.667	0.667	0.667	0.200	0.200	0.200	0.200
Uniform delay, $d_1 = \frac{0.50\ C\ [1 - (g/C)]^2}{1 - [\min(1,X)g/C]}$ (s/veh)	6.6	12.1	4.6	7.5	24.1	24.2	24.3	25.4
Incremental delay calibration, k	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Incremental delay, d_2 $d_2 = 900T[(X - 1) + \sqrt{(X - 1)^2 + \frac{8kIX}{cT}}]$ (s/veh)	7.0	22.2	2.7	2.9	0.2	0.2	0.5	2.4
Initial queue delay, d_3 (s/veh) (Appendix F)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform delay, d_1 (s/veh) (Appendix F)								
Progression adjustment factor, PF	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Delay, $d = d_1(PF) + d_2 + d_3$ (s/veh)	13.6	34.3	7.3	10.4	24.3	24.4	24.8	27.8
LOS by lane group (Exhibit 16-2)	B	C	A	B	C	C	C	C
Delay by approach, $d_A = \frac{\sum(d)(v)}{\sum v}$ (s/veh)	31.9		10.4		24.4		27.2	
LOS by approach (Exhibit 16-2)	C		B		C		C	
Approach flow rate, v_A (veh/h)	1373		834		20		92	
Intersection delay, $d_I = \frac{\sum(d_A)(v_A)}{\sum v_A}$ (s/veh)	23.9		Intersection LOS (Exhibit 16-2)				C	

CHAPTER 16 - SUPPLEMENTAL WORKSHEET FOR PERMITTED LEFT TURNS

General Information

Description/Comment Comments

Input

	EB	WB	NB	SB
Cycle length, C (s)	75.0			
Total actual green time for LT lane group,[1] G (s)	50.0	50.0	15.0	15.0
Effective permitted green time for LT lane group,[1] g (s)	50.0	50.0	15.0	15.0
Opposing effective green time, g_o (s)	50.0	50.0	15.0	15.0
Number of lanes in LT lane group,[2] N	1	1	1	1
Number of lanes in opposing approach, N_o	1	1	1	1
Adjusted LT flow rate, v_{LT} (veh/h)	163	13	7	17
Proportion of LT volume in LT lane group,[3] P_{LT}	1.000	1.000	1.000	1.000
Adjusted flow rate for opposing approach, v_o (veh/h)	821	1210	75	13
Lost time for LT lane group, t_L	5.0	5.0	5.0	5.0

Computation

LT volume per cycle, LTC = $v_{LT}C/3600$	3	0	0	0
Opposing lane utilization factor, f_{LUo} (refer to Volume Adjustment and Saturation Flow Rate Worksheet)	1.000	1.000	1.000	1.000
Opposing flow per lane, per cycle (veh/C/ln)	17	25	2	0
$g_f = g_f \leq g$ (except for exclusive left-turn lanes)[1, 4]	0.0	0.0	0.0	0.0
Opposing platoon ratio, R_{po} (refer to Exhibit 16-11)	1.000	1.000	1.000	1.000
Opposing queue ratio, $qr_o = \max[1 - R_{po}(g_o/C), 0]$	0.33	0.33	0.80	0.80
Opposing queue effective green interval, g_q	15.9	46.2	0.0	0.0
$g_u = g - g_q$ if $g_q \geq g_f$, or $g_u = g - g_f$ if $g_q < g_f$	34.1	3.8	15.0	15.0
$n = \max[(g_q - g_f)/2,0]$	8	23	0	0
$P_{THo} = 1 - P_{LTo}$	0.000	0.000	0.000	0.000
E_{L1} (refer to Exhibit C16-3)	2.8	4.0	1.4	1.3
$E_{L2} = \max[(1 - P_{THo}^n)/P_{LTo}, 1.0]$	1.0	1.0	1.0	1.0
$P_L = P_{LT}\left[1 + \frac{(N-1)g}{(g_f + g_u/E_{L1} + 4.24)}\right]$ (except with multilane subject approach)[5]	1.000	1.000	1.000	1.000
$f_{min} = 2(1 + P_L)/g$	0.080	0.080	0.267	0.267
$g_{diff} = \max[g_q - g_f, 0]$ ($g_{diff} = 0$ when left-turn volume is 0)	15.949	46.243	0.000	0.000
Adjustment factor for lanes with LT, f_m	0.243	0.080	0.708	0.749
LT adjustment factor, f_{LT}[6]	0.243	0.080	0.708	0.749

Notes

1. Refer to Exhibits C16-4, C16-5, C16-6, C16-7, and C16-8 for case-specific parameters and adjustment factors.
2. For exclusive left-turn lanes, N is equal to the number of exclusive left-turn lanes. For shared left-turn lanes, N is equal to the sum of the shared left-turn, through, and shared right-turn (if one exists) lanes in that approach.
3. For exclusive left-turn lanes, $P_{LT} = 1$.
4. For exclusive left-turn lanes, $g_f = 0$, and skip the next step. Lost time, t_L, may not be applicable for protected-permitted case.
5. For a multilane subject approach, if $P_L \geq 1$ for a left-turn shared lane, then assume it to be a de facto exclusive left-turn lane and redo the calculation.
6. For permitted left turns with multiple exclusive left-turn lanes $f_{LT} = f_m$.

CHAPTER 16 - SUPPLEMENTAL UNIFORM DELAY WORKSHEET FOR LEFT TURNS FROM EXCLUSIVE LANES WITH PROTECTED AND PERMITTED PHASES

General Information

Description/Comment Comments

v/c Ratio Computation

	EB	WB	NB	SB
Cycle length, C (s)	75.0			
Protected phase eff. green interval, g (s)	50.0	50.0	15.0	15.0
Opposing queue effective green interval, g_q (s)	15.9	46.2	0.0	0.0
Unopposed green interval, g_u (s)	34.1	3.8	15.0	15.0
Red time, r (s) $r = C - g - g_q - g_u$	-25.0	-25.0	45.0	45.0
Arrival rate, q_a (veh/s) $q_a = \frac{v}{3600 * \max[X, 1.0]}$	0	0	0	0
Protected phase departure rate, s_p (veh/s) $s_p = \frac{s}{3600}$	0	0	0	0
Permitted phase departure rate, s_s (veh/s) $s_s = \frac{s(g_q + g_u)}{(g_u * 3600)}$				
If leading left (protected + permitted) v/c ratio, $X_{perm} = \frac{q_a(g_q + g_u)}{s_s g_u}$ If lagging left (permitted + protected) v/c ratio, $X_{perm} = \frac{q_a(r + g_q + g_u)}{s_s g_u}$				
If leading left (protected + permitted) v/c ratio, $X_{prot} = \frac{q_a(r + g)}{s_p g}$ If lagging left (permitted + protected) v/c ratio, X_{prot} is N/A				

Uniform Queue Size and Delay Computations

Queue at beginning of green arrow, Q_a				
Queue at beginning of unsaturated green, Q_u				
Residual queue, Q_r				
Uniform delay, d_1				

Uniform Queue Size and Delay Equations

	Case	Q_a	Q_u	Q_r	d_1
If $X_{perm} \le 1.0$ & $X_{prot} \le 1.0$	1	$q_a r$	$q_a g_q$	0	$[0.50/(q_a C)][rQ_a + Q_a^2/(s_p - q_a) + g_q Q_u + Q_u^2/(s_s - q_a)]$
If $X_{perm} \le 1.0$ & $X_{prot} > 1.0$	2	$q_a r$	$Q_r + q_a g_q$	$Q_a - g(s_p - q_a)$	$[0.50/(q_a C)][rQ_a + g(Q_a + Q_r) + g_q(Q_r + Q_u) + Q_u^2/(s_s - q_a)]$
If $X_{perm} > 1.0$ & $X_{prot} \le 1.0$	3	$Q_r + q_a r$	$q_a g_q$	$Q_u - g_u(s_s - q_a)$	$[0.50/(q_a C)][g_q Q_u + g_u(Q_u + Q_r) + r(Q_r + Q_a) + Q_a^2/(s_p - q_a)]$
If $X_{perm} \le 1.0$ (lagging lefts)	4	0	$q_a(r + g_q)$	0	$[0.50/(q_a C)][(r + g_q)Q_u + Q_u^2/(s_s - q_a)]$
If $X_{perm} > 1.0$ (lagging lefts)	5	$Q_u - g_u(s_s - q_a)$	$q_a(r + g_q)$	0	$[0.50/(q_a C)][(r + g_q)Q_u + g_u(Q_u + Q_a) + Q_a^2/(s_p - q_a)]$

CHATPER 16 - SUPPLEMENTAL WORKSHEET FOR PEDESTRIAN-BICYCLE EFFECTS ON PERMITTED LEFT TURNS AND RIGHT TURNS

General Information

Description/Comment Comments

Permitted Left Turns

	EB	WB	NB	SB
				
Effective pedestrian green time,[1,2] g_p (s)	50.0	50.0	16.2	
Conflicting pedestrian volume,[1] v_{ped} (p/h)	50	50	50	50
$v_{pedg} = v_{ped}$ (C/g_p)	75	75	231	231
$OCC_{pedg} = v_{pedg}/2000$ if ($v_{pedg} \leq 1000$) or $OCC_{pedg} = 0.4 + v_{pedg}/10{,}000$ if ($1000 < v_{pedg} \leq 5000$)	0.037	0.037	0.116	0.116
Opposing queue clearing green,[3,4] g_q (s)	15.9	46.2	0.0	0.0
Effective pedestrian green consumed by opposing vehicle queue, g_q/g_p; if $g_q \geq g_p$ then $f_{Lpb} = 1.0$				
$OCC_{pedu} = OCC_{pedg}[1 - 0.5(g_q/g_p)]$	0.032	0.020	0.116	0.116
Opposing flow rate,[3] v_o (veh/h)	821	1210	75	13
$OCC_r = OCC_{pedu}[e^{-(5/3600)v_o}]$	0.010	0.004	0.104	0.114
Number of cross-street receiving lanes,[1] N_{rec}	1	1	1	1
Number of turning lanes,[1] N_{turn}	1	1	1	1
$A_{pbT} = 1 - OCC_r$ if $N_{rec} = N_{turn}$ $A_{pbT} = 1 - 0.6(OCC_r)$ if $N_{rec} > N_{turn}$	0.990	0.996	0.896	0.886
Proportion of left turns,[5] P_{LT}	1.000	1.000	1.000	1.000
Proportion of left turns using protected phase,[6] P_{LTA}	0.000	0.000	0.000	0.000
$f_{Lpb} = 1.0 - P_{LT}(1 - A_{pbT})(1 - P_{LTA})$	0.990	0.996	0.896	0.886

Permitted Right Turns

				
Effective pedestrian green time,[1,2] g_p (s)	50.0	50.0	16.2	16.2
Conflicting pedestrian volume,[1] v_{ped} (p/h)	50	50	50	50
Conflicting bicycle volume,[1,7] v_{bic} (bicycles/h)	0	0	0	0
$v_{pedg} = v_{ped}$(C/g_p)	75	75	231	231
$OCC_{pedg} = v_{pedg}/2000$ if ($v_{pedg} \leq 1000$), or $OCC_{pedg} = 0.4 + v_{pedg}/10{,}000$ if ($1000 < v_{pedg} \leq 5000$)	0.037	0.037	0.116	0.116
Effective green,[1] g (s)	50.0	50.0		16.2
$v_{bicg} = v_{bic}$(C/g)	0	0	0	0
$OCC_{bicg} = 0.02 + v_{bicg}/2700$	0.000	0.000	0.000	0.000
$OCC_r = OCC_{pedg} + OCC_{bicg} - (OCC_{pedg})(OCC_{bicg})$	0.037	0.037	0.116	0.116
Number of cross-street receiving lanes,[1] N_{rec}	1	1	1	1
Number of turning lanes,[1] N_{turn}	1	1	1	1
$A_{pbT} = 1 - OCC$ if $N_{rec} = N_{turn}$ $A_{pbT} = 1 - 0.6(OCC_r)$ if $N_{rec} > N_{turn}$	0.963	0.963	0.884	0.884
Proportion of right turns,[5] P_{RT}	0.014	0.042	0.250	0.986
Proportion of right turns using protected phase,[8] P_{RTA}	0.000	0.000	0.000	0.000
$f_{Rpb} = 1.0 - P_{RT}(1 - A_{pbT})(1 - P_{RTA})$	0.999	0.998	0.971	0.886

Notes

1. Refer to Input Worksheet.
2. If intersection signal timing is given, use Walk + flashing Don't Walk (use G + Y if no pedestrian signals). If signal timing must be estimated, use (Green Time – Lost Time per Phase) from Quick Estimation Control Delay and LOS Worksheet.
3. Refer to supplemental worksheets for left turns.
4. If unopposed left turn, then $g_q = 0$, $v_o = 0$, and $OCC_r = OCC_{pedu} = OCC_{pedg}$.
5. Refer to Volume Adjustment and Saturation Flow Rate Worksheet.
6. Ideally determined from field data; alternatively, assume it equal to (1 – permitted phase f_{LT})/0.95.
7. If $v_{bic} = 0$ then $v_{bicg} = 0$, $OCC_{bicg} = 0$, and $OCC_r = OCC_{pedg}$.
8. P_{RTA} is the proportion of protected green over the total green, $g_{prot}/(g_{prot} + g_{perm})$. If only permitted right-turn phase exists, then $P_{RTA} = 0$.

CHAPTER 16 - BACK-OF-QUEUE WORKSHEET

General Information

Description/Comment Comments

Average Back of Queue

	EB		WB		NB		SB	
Lane group	L	TR	L	TR	L	TR	L	TR
Initial queue per lane at the start of analysis period, Q_{bL}	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow rate per lane, v_L (veh/h)	163	1210	13	821	7	13	17	75
Saturation flow rate per lane, s_L (veh/h)	448	1843	149	1834	1182	1728	1237	1395
Capacity per lane, c_L (veh/h)	298.4	1228.9	99.0	1222.4	236.3	345.5	247.3	279.1
Flow ratio, v_L/s_L	0.364	0.656	0.088	0.448	0.006	0.008	0.014	0.054
v/c ratio, $X_L = v_L/c_L$	0.546	0.984	0.132	0.671	0.028	0.038	0.070	0.269
Effective green time, g (s)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0
Green ratio, g/C	0.667	0.667	0.667	0.667	0.200	0.200	0.200	0.200
Upstream filtering factor, I	1.000		1.000		1.000		1.000	
Proportion of vehicles arriving on green, P	0.667	0.667	0.667	0.667	0.200	0.200	0.200	0.200
Platoon ratio, R_p $R_p = \left(\frac{P}{g/C}\right)$	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Effects of progression adjustment factor, PF_2 $PF_2 = \frac{\left(1 - R_p\frac{g}{C}\right)\left(1 - \frac{v_L}{s_L}\right)}{\left(1 - \frac{g}{C}\right)\left[1 - R_p\left(\frac{v_L}{s_L}\right)\right]}$	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
First-term queued vehicles, Q_1 (veh) $Q_1 = PF_2 \frac{\frac{v_L C}{3600}\left(1 - \frac{g}{C}\right)}{1 - \min(1.0, X_L)\left(\frac{g}{C}\right)}$	1.8	24.4	0.1	10.3	0.1	0.2	0.3	1.3
Second-term incremental factor, k_B $k_B = 0.12\, I \left(\frac{s_L g}{3600}\right)^{0.7}$ (prelimed signals) $k_B = 0.10\, I \left(\frac{s_L g}{3600}\right)^{0.6}$ (actuated signals)	0.431	1.161	0.199	1.157	0.366	0.478	0.378	0.411
Second-term queued vehicles, Q_2	0.5	12.1	0.0	2.3	0.0	0.0	0.0	0.2
Average number of queued vehicles, Q $Q = Q_1 + Q_2$	2.3	36.6	0.1	12.6	0.1	0.2	0.3	1.5
Initial queue in next period, Q_b (veh)								

Percentile Back of Queue

☐ 70% ☐ 85% ☐ 90% ☑ 95% ☐ 98%

Percentile back-of-queue factor,[1] $f_{B\%}$	2.0	1.6	2.1	1.8	2.1	2.1	2.1	2.1
Percentile back-of-queue, $Q_{\%}$ (veh), $Q_{\%} = Qf_{B\%}$	4.6	57.7	0.3	22.6	0.3	0.5	0.7	3.0

Queue Storage Ratio

Average queue spacing, L_h (ft)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Available queue storage, L_a (ft)	300.0	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Average queue storage ratio, $R_Q = \frac{L_h Q}{L_a}$	0.190	3.047	0.011	1.048	0.010	0.020	0.027	0.123
Percentile queue storage ratio, $R_{Q\%} = \frac{L_h Q_{\%}}{L_a}$	0.4	4.8	0.0	1.9	0.0	0.0	0.1	0.3

Notes

1. $f_{B\%} = p_1 + p_2\, e^{\left(\frac{-0}{p_3}\right)}$, where p_1, p_2, and p_3 are obtained from Exhibit G16-5.

2025 EXISTING GEOMETRY

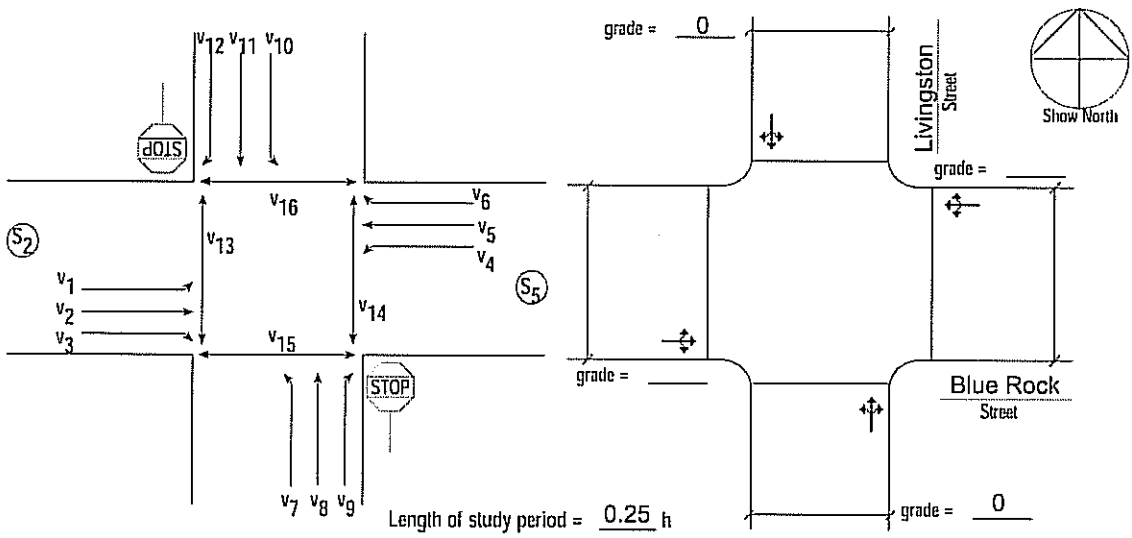
CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 1

General Information / Site Information

Analyst	Eric Beck	Jurisdiction/Date	Ham 09/15/2006
Agency or Company	Hamilton County	Major Street	Blue Rock
Analysis Period/Year	PM 2025	Minor Street	Livingston
Comment	Comments		

Geometrics and Movements



Worksheet 2

Vehicle Volumes and Adjustments

Movement	EB			WB			NB			SB		
	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	150	999	16	12	723	71	6	9	3	16	1	68
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (veh/h)	167	1110	18	13	803	79	7	10	3	18	1	76
Percent heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3

Pedestrian Volumes and Adjustments

Movement	13	14	15	16
Flow, V_x (ped/h)	0	0	0	0
Lane width, w (ft)	12.0	12.0	12.0	12.0
Walking speed,[1] S_p (ft/s)	4.0	4.0	4.0	4.0
Percent blockage, f_p (Equation 17-11)	0.00	0.00	0.00	0.00

1. Default walking speed = 4.0 ft/s

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 3

General Information

Description/Comment Comments

Lane Designation

Movements	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Grade, G	Right Turn Channelized?
1, 2, 3	LTR						N
4, 5, 6	LTR						N
7, 8, 9	LTR					0	N
10, 11, 12	LTR					0	N

Flared Minor-Street Approach

Movement 9 ☑ Yes ☐ No Storage space, n _____ (number of vehicles)

Movement 12 ☑ Yes ☐ No Storage space, n _____ (number of vehicles)

Median Storage*

* Includes raised or striped median (RM), or two-way left-turn lane (TWLTL)

		Type			
Movements 7 and 8	☐ Yes	N	☑ No	Storage space, m	_____ (number of vehicles)
Movements 10 and 11	☐ Yes	N	☑ No	Storage space, m	_____ (number of vehicles)

Upstream Signals - Input Data

	Movements	Distance to Signal, D (ft)	Prog Speed, S_{prog} (mi/h)	Cycle Length, C (s)	Green Time, g_{eff} (s)	Arrival Type	Saturation Flow Rate, s (veh/h)	Progressed Flow, V_{prog} (veh/h)
S_2	protected LT	1320	35	100	15	3	1700	
	TH				25	3	1700	
S_5	protected LT	1320	35	100	15	3	1700	
	TH				25	3	1700	

Computing Delay to Major-Street Vehicles

Data for Computing Effect of Delay to Major-Street Vehicles	S_2 Approach	S_5 Approach
Shared-lane volume, major-street through vehicles, v_{i1}, blocked by LT (veh/h)		
Shared-lane volume, major-street right-turn vehicles, v_{i2}, blocked by LT (veh/h)		
Saturation flow rate, major-street through vehicles, s_{i1} (veh/h)	1700	1700
Saturation flow rate, major-street right-turn vehicles, s_{i2} (veh/h)	1700	1700
Number of major-street through lanes	1	1

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 4

General Information

Description/Comment Comments

Critical Gap and Follow-Up Time

$$t_c = t_{c,base} + t_{c,HV} P_{HV} + t_{c,G} G - t_{c,T} - t_{3,LT}$$

		Major LT		Minor RT		Minor TH		Minor LT	
Movement		1	4	9	12	8	11	7	10
$t_{c,base}$ (Exhibit 17-5)		4.1	4.1	6.2	6.2	6.5	6.5	7.1	7.1
$t_{c,HV}$		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
% HV(from Worksheet 2)		3	3	3	3	3	3	3	3
$t_{c,G}$		-	-	0.1	0.1	0.2	0.2	0.2	0.2
G (from Worksheet 3)		-	-	0	0	0	0	0	0
$t_{3,LT}$		-	-	-	-	-	-	0.0	0.0
$t_{c,T}$	single stage					0.0	0.0	0.0	0.0
	two stage								
t_c (Equation 17-1)	single stage	4.1	4.1	6.2	6.2	6.5	6.5	7.1	7.1
	two stage								

$$t_f = t_{f,base} + t_{f,HV} P_{HV}$$

	Major LT		Minor RT		Minor TH		Minor LT	
Movement	1	4	9	12	8	11	7	10
$t_{f,base}$ (Exhibit 17-5)	2.2	2.2	3.3	3.3	4.0	4.0	3.5	3.5
$t_{f,HV}$	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
% HV (from Worksheet 2)	3	3	3	3	3	3	3	3
t_f (Equation 17-2)	2.2	2.2	3.3	3.3	4.0	4.0	3.5	3.5

Worksheet 5a - Upstream Signals

Time to Clear Standing Queue (Computation 1)

	EB		WB	
	$V_{T,prog}$	$V_{L,prot}$	$V_{T,prog}$	$V_{L,prot}$
Effective green, g_{eff} (s)	25	15	25	15
Cycle length, C (s)	100	100	100	100
Saturation flow rate, s (veh/h)	1700	1700	1700	1700
Arrival type	3	3	3	3
v_{prog} (veh/h)				
R_p (from Chapter 16)		1.00		1.00
Proportion of vehicles arriving on green, P (Equation 17-17)				
g_{q1} (Equation 17-18)				
g_{q2} (Equation 17-19)				
g_q (Equation 17-20)				

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 5b - TWSC Intersection

General Information

Description/Comment Comments

Proportion of Time TWSC Intersection Is Blocked (Computation 2)

	Movement 2		Movement 5	
	$v_{T,prog}$	$v_{L,prot}$	$v_{T,prog}$	$v_{L,prot}$
α (Exhibit 17-13)				
$\beta = (1 + \alpha)^{-1}$				
$t_a = D/S_{prog}$ (s)				
$F = (1 + \alpha\beta t_a)^{-1}$				
$f = V_{prog}/V_C \geq 0$	1.00	1.00	1.00	1.00
$v_{c,Max}$ (Equation 17-21)				
$v_{c,Min} = 1000N$				
t_p (Equation 17-22)				
p (Equation 17-23)				

Worksheet 5c - TWSC Intersection

Platoon Event Periods (Computation 3)

p_2 (from Worksheet 5b)	
p_5 (from Worksheet 5b)	
p_{dom} (Equation 17-24)	
p_{subo} (Equation 17-25)	
Constrained or unconstrained (Equation 17-26, 17-27)	0

Proportion for Minor Movements, p_x

	Single-Stage	Two-Stage	
	(Exhibit 17-16)	Stage I	Stage II
p_1			
p_4			
p_7			
p_8			
p_9			
p_{10}			
p_{11}			
p_{12}			

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 5d - TWSC Intersection

General Information

Description/Comment Comments

Conflicting Flows During Unblocked Period (Computation 4)

Single-Stage

Movements	1	4	7	8	9	10	11	12
$v_{c,x}$ (Exhibit 17-4)	882	1128	2360	2361	1119	2328	2331	843
s (veh/h)	1700	1700	1700	1700	1700	1700	1700	1700
p_x (from Worksheet 5c)								
$v_{c,u,x}$ (Equation 17-28)								

Two-Stage

Movements	7		8		10		11	
	Stage I	Stage II	Stage I	Stage II	Stage I	Stage II	Stage I	Stage II
$v_{c,x}$ (Exhibit 17-4)								
s (veh/h)	1700	1700	1700	1700	1700	1700	1700	1700
p_x (from Worksheet 5c)								
$V_{c,u,x}$ (Equation 17-28)								

Worksheet 5e - TWSC Intersection

Capacity During Unblocked Period (Computation 5)

Single-Stage

Movements	1	4	7	8	9	10	11	12
p_x (from Worksheet 5c)								
$c_{r,x}$ (Equation 17-3)								
$c_{plat,x}$ (Equation 17-29)								

Two-Stage

Movements	7		8		10		11	
	Stage I	Stage II	Stage I	Stage II	Stage I	Stage II	Stage I	Stage II
p_x (from Worksheet 5c)								
$c_{r,x}$ (Equation 17-3)								
$c_{plat,x}$ (Equation 17-29)								

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 6

General Information

Description/Comment Comments

Impedance and Capacity Calculation

Step 1: RT from Minor Street		v_9		v_{12}
Conflicting flows (Exhibit 17-4)	$v_{c,9}$ =	1119	$v_{c,12}$ =	843
Potential capacity (Equation 17-3 or 17-29)	$c_{p,9}$ =	250	$c_{p,12}$ =	362
Ped impedance factor (Equation 17-12)	$p_{p,9}$ =	1.000	$p_{p,12}$ =	1.000
Movement capacity (Equation 17-4)	$c_{m,9}$ =	250	$c_{m,12}$ =	362
Prob of queue-free state (Equation 17-5)	$p_{0,9}$ =	0.987	$p_{0,12}$ =	0.791
Step 2: LT from Major Street		v_4		v_1
Conflicting flows (Exhibit 17-4)	$v_{c,4}$ =	1128	$v_{c,1}$ =	882
Potential capacity (Equation 17-3 or 17-29)	$c_{p,4}$ =	616	$c_{p,1}$ =	762
Ped impedance factor (Equation 17-12)	$p_{p,4}$ =	1.000	$p_{p,1}$ =	1.000
Movement capacity (Equation (17-4)	$c_{m,4}$ =	616	$c_{m,1}$ =	762
Prob of queue-free state (Equation 17-5)	$p_{0,4}$ =	0.978	$p_{0,1}$ =	0.781
Major left shared lane prob of queue-free state (Equation 17-16)	$p^*_{0,4}$ =		$p^*_{0,1}$ =	
Step 3: TH from Minor Street (4-leg intersections only)		v_8		v_{11}
Conflicting flows (Exhibit 17-4)	$v_{c,8}$ =	2361	$v_{c,11}$ =	2331
Potential capacity (Equation 17-3 or 17-29)	$c_{p,8}$ =	35	$c_{p,11}$ =	37
Ped impedance factor (Equation 17-12)	$p_{p,8}$ =	1.000	$p_{p,11}$ =	1.000
Capacity adjustment factor due to impeding movement (shared lane use p^*) (Equation 17-13)	f_8 =	0.764	f_{11} =	0.764
Movement capacity (Equation 17-7)	$c_{m,8}$ =	27	$c_{m,11}$ =	28
Prob of queue-free state	$p_{0,8}$ =	0.627	$p_{0,11}$ =	0.960
Step 4: LT from Minor Street (4-leg intersections only)		v_7		v_{10}
Conflicting flows (Exhibit 17-4)	$v_{c,7}$ =	2360	$v_{c,10}$ =	2328
Potential capacity (Equation 17-3 or 17-29)	$c_{p,7}$ =	24	$c_{p,10}$ =	26
Ped impedance factor (Equation 17-12)	$p_{p,7}$ =	1.000	$p_{p,10}$ =	1.000
Major left, minor through impedance factor	p''_7 =	0.734	p''_{10} =	0.480
Major left, minor through adjusted impedance factor (Equation 17-8)	p'_7 =	0.795	p'_{10} =	0.589
Capacity adjustment factor due to impeding movements (Equation 17-14)	f_7 =	0.629	f_{10} =	0.582
Movement capacity (Equation 17-10)	$c_{m,7}$ =	15	$c_{m,10}$ =	15
Step 5: LT from Minor Street (T-intersections only)		v_7		v_{10}
Conflicting flows (Exhibit 17-4)	$v_{c,7}$ =	2360	$v_{c,10}$ =	2328
Potential capacity (Equation 17-3 or 17-29)	$c_{p,7}$ =	24	$c_{p,10}$ =	26
Ped impedance factor (Equation 17-12)	$p_{p,7}$ =	1.000	$p_{p,10}$ =	1.000
Capacity adjustment factor due to impeding movement (shared lane use p^*) (Equation 17-13)	f_7 =	0.629	f_{10} =	0.582
Movement capacity (Equation 17-7)	$c_{m,7}$ =	15	$c_{m,10}$ =	15

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 7a

General Information

Description/Comment Comments

Effect of Two-Stage Gap Acceptance

Step 3: TH from Minor Street	v_8	V_{11}
Part I - First Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,I,8}$ =	$v_{c,I,11}$ =
Potential capacity (Equation 17-3 or 17-29)	$c_{p,I,8}$ =	$c_{p,I,11}$ =
Ped impedance factor (Equation 17-12)	$p_{p,I,8}$ =	$p_{p,I,11}$ =
Capacity adjustment factor due to impeding movement (shared lane use p*) (Equation 17-6 or 17-13)	$f_{I,8}$ =	$f_{I,11}$ =
Movement capacity (Equation 17-7)	$c_{m,I,8}$ =	$c_{m,I,11}$ =
Prob of queue-free state (Equation 17-5)	$p_{0,I,8}$ =	$p_{0,I,11}$ =
Part II - Second Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,II,8}$ =	$v_{c,II,11}$ =
Potential capacity (Equation 17-3 or 17-29)	$c_{p,II,8}$ =	$c_{p,II,11}$ =
Ped impedance factor (Equation 17-12)	$p_{p,II,8}$ =	$p_{p,II,11}$ =
Capacity adjustment factor due to impeding movement (shared lane use p*) (Equation 17-6 or 17-13)	$f_{II,8}$ =	$f_{II,11}$ =
Movement capacity (Equation 17-7)	$c_{m,II,8}$ =	$c_{m,II,11}$ =
Prob of queue-free state (Equation 17-5)	$p_{0,II,8}$ =	$p_{0,II,11}$ =
Part III - Single Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,8}$ = 2361	$v_{c,11}$ = 2331
Potential capacity (Equation 17-3 or 17-29)	$c_{p,8}$ = 35	$c_{p,11}$ = 37
Ped impedance factor (Equation 17-12)	$p_{p,8}$ = 1.000	$p_{p,11}$ = 1.000
Capacity adjustment factor due to impeding movement (shared lane use p*) (Equation 17-13 or 17-16)	f_8 = 0.764	f_{11} = 0.764
Movement capacity (Equation 17-7)	$c_{m,8}$ = 27	$c_{m,11}$ = 28
Result for Two-Stage Process		
a (Equation 17-30)	a =	a =
y (Equation 17-31)	y =	y =
c_T (Equation 17-32 or 17-33)	c_T =	c_T =
Prob of queue-free state (Equation 17-5)	$p_{0,8}$ = 0.627	$p_{0,11}$ = 0.960

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 7b

General Information

Description/Comment Comments

Effect of Two-Stage Gap Acceptance

Step 4: LT from Minor Street	v_7	v_{10}
Part I - First Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,I,7}$ =	$v_{c,I,10}$ =
Potential capacity (Equation 17-3 or 17-29)	$c_{p,I,7}$ =	$c_{p,I,10}$ =
Ped impedance factor (Equation 17-12)	$p_{p,I,7}$ =	$p_{p,I,10}$ =
Capacity adjustment factor due to impeding movements	$f_{I,7}$ =	$f_{I,10}$ =
Movement capacity (Equation 17-7)	$c_{m,I,7}$ =	$c_{m,I,10}$ =
Part II - Second Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,II,7}$ =	$v_{c,II,10}$ =
Potential capacity (Equation 17-3 or 17-29)	$c_{p,II,7}$ =	$c_{p,II,10}$ =
Ped impedance factor (Equation 17-12)	$p_{p,II,7}$ =	$p_{p,II,10}$ =
Capacity adjustment factor due to impeding movements	$f_{II,7}$ =	$f_{II,10}$ =
Movement capacity (Equation 17-7)	$c_{m,II,7}$ =	$c_{m,II,10}$ =
Part III - Single-Stage		
Conflicting flows (Exhibit 17-4)	$v_{c,7}$ = 2360	$v_{c,10}$ = 2328
Potential capacity (Equation 17-3 or 17-29)	$c_{p,7}$ = 24	$c_{p,10}$ = 26
Ped impedance factor (Equation 17-12)	$p_{p,7}$ = 1.000	$p_{p,10}$ = 1.000
Major left, minor through impedance factor	p_7'' = 0.734	p_{10}'' = 0.480
Major left, minor through adjusted impedance factor (Equation 17-8)	p_7' = 0.795	p_{10}' = 0.589
Capacity adjustment factor due to impeding movements (Equation 17-9 or 17-14)	f_7 = 0.629	f_{10} = 0.582
Movement capacity (Equation 17-7)	$c_{m,7}$ = 15	$c_{m,10}$ = 15
Result for Two-Stage Process		
a (Equation 17-30)	a =	a =
y (Equation 17-31)	y =	y =
c_T (Equation 17-32 or 17-33)	c_T =	c_T =

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 8

General Information

Description/Comment Comments

Shared-Lane Capacity

$$c_{SH} = \frac{\sum_y v_y}{\sum_y \left(\frac{v_y}{c_{m,y}}\right)} \quad \text{(Equation 17-15)}$$

	v (veh/h)			c_m (veh/h)			c_{SH} (veh/h)
Lane	Movement 7	Movement 8	Movement 9	Movement 7	Movement 8	Movement 9	
1 (curb)	7	10	3	15	27	250	24
2							
3							
	Movement 10	Movement 11	Movement 12	Movement 10	Movement 11	Movement 12	
1 (curb)	18	1	76	15	28	362	66
2							
3							

Worksheet 9

Effect of Flared Minor-Street Approaches

	NB		SB	
	Movement 7/8	Movement 9	Movement 10/11	Movement 12
c_{sep}				
Flow rate (from Worksheet 2)		3		68
Delay (Equation 17-38) d_{sep}				
Q_{sep} (Equation 17-34)				
Q_{sep} + 1				
round (Q_{sep} + 1)				
n_{max} (Equation 17-35)				
c_{SH}				
$\sum c_{sep}$ (Equation 17-36a)				
n				
c_{act} (Equation 17-36)				

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Worksheet 10

General Information

Description/Comment Comments

Control Delay, Queue Length, Level of Service

Lane	Movement	v (veh/h)	c_m (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS (Exhibit 17-2)	Delay and LOS
1*	LTR	20	24	0.840	3	361.9	F	361.9 F
2								
3								
1*	LTR	95	66	1.446	8	374.2	F	374.2 F
2								
3								

* Curb lane

Movement	v (veh/h)	c_m (veh/h)	v/c	Queue Length (Equation 17-37)	Control Delay (Equation 17-38)	LOS (Exhibit 17-2)
1 (LT)	167	762	0.219	1	11.0	B
4 (LT)	13	616	0.022	0	11.0	B

Worksheet 11

Delay to Rank 1 Vehicles

	S_2 Approach	S_5 Approach
$p_{0,j}$ (Equation 17-5)	$p_{0,1}$ = 0.781	$p_{0,4}$ = 0.978
v_{i1}, volume for Stream 2 or 5		
v_{i2}, volume for Stream 3 or 6		
s_{i1}, saturation flow rate for Stream 2 or 5	1700	1700
s_{i2}, saturation flow rate for Stream 3 or 6	1700	1700
$p^*_{0,j}$ (Equation 17-16)	$p^*_{0,1}$=	$p^*_{0,4}$=
$d_{major\ left}$, delay for Stream 1 or 4	11.0	11.0
N, number of major-street through lanes	1	1
$d_{Rank\ 1}$, delay for Stream 2 or 5 (Equation 17-39)		

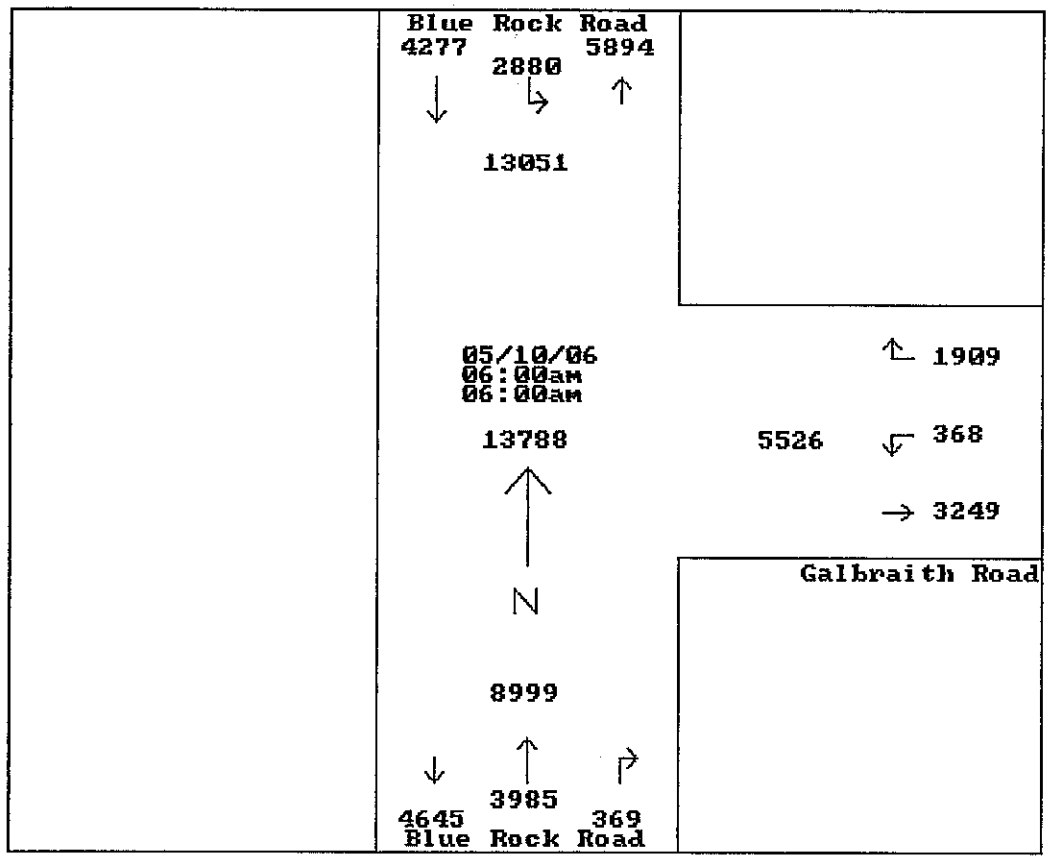
Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06
Page : 1

Unshifted

Start Time	Blue Rock Road From North			Galbraith Road From East			Blue Rock Road From South			Intrvl. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
Grp 1	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	
05/10/06										
06:00	4277	2880	0	1909	368	0	369	3985	0	13788
% Apr.	59.7	40.2	-	83.8	16.1	-	8.4	91.5	-	-
% Int.	31.0	20.8	-	13.8	2.6	-	2.6	28.9	-	-



24 Hour Count (Factor = 1.43)

Blue Rock Road & Galbraith Road

Colerain Township

2006 Manual Traffic Count

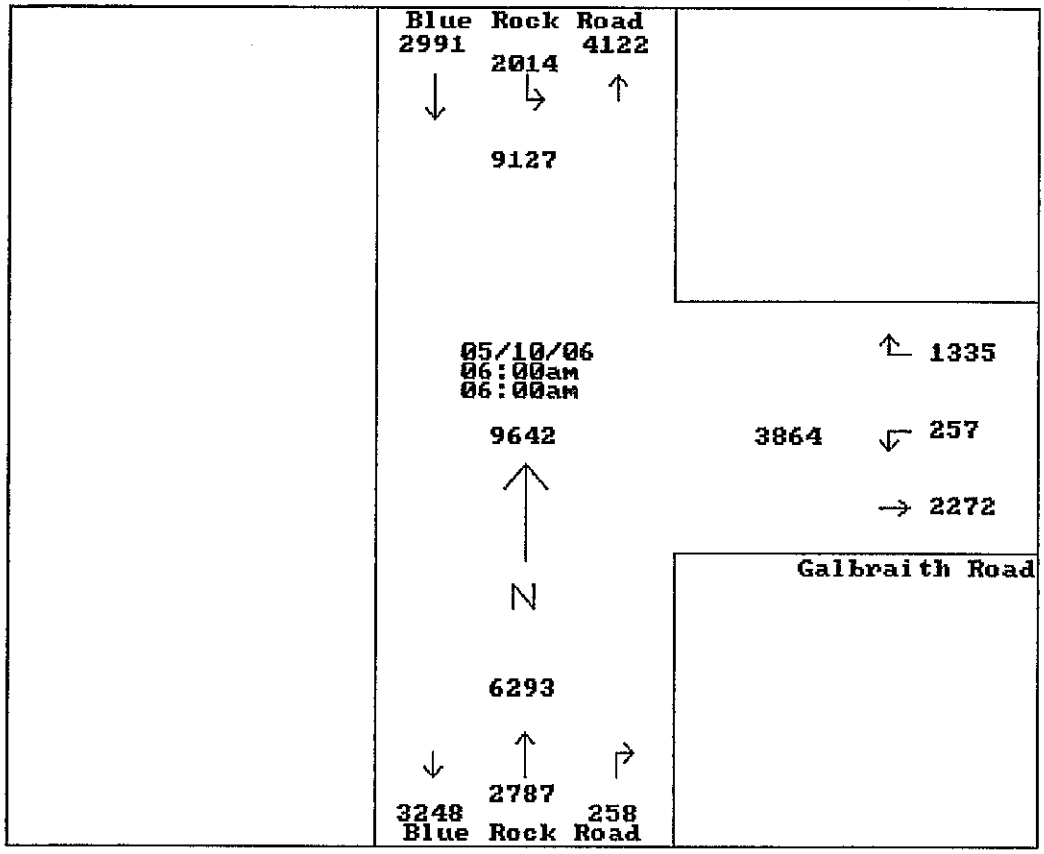
Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06
Page : 1

Unshifted

Start Time	Blue Rock Road From North Thru	Left	Peds	Galbraith Road From East Right	Left	Peds	Blue Rock Road From South Right	Thru	Peds	Intrvl. Total
05/10/06										
06:00	2991	2014	0	1335	257	0	258	2787	0	9642
% Apr.	59.7	40.2	-	83.8	16.1	-	8.4	91.5	-	-
% Int.	31.0	20.8	-	13.8	2.6	-	2.6	28.9	-	-



12 Hour Count

Blue Rock Road & Galbraith Road

Colerain Township

2006 Manual Traffic Count

Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06
Page : 1

Unshifted

Start Time	Blue Rock Road From North			Galbraith Road From East			Blue Rock Road From South			Intrvl. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
05/10/06										
06:00	20	6	0	7	0	0	1	30	0	64
06:15	34	12	0	30	1	0	0	46	0	123
06:30	49	14	0	29	0	0	1	78	0	171
06:45	55	25	0	19	2	0	1	59	0	161
Hour	158	57	0	85	3	0	3	213	0	519
07:00	59	28	0	37	6	0	9	90	0	229
07:15	72	45	0	38	9	0	9	95	0	268
07:30	90	35	0	41	5	0	2	96	0	269
07:45	64	54	0	30	2	0	3	69	0	222
Hour	285	162	0	146	22	0	23	350	0	988
08:00	78	46	0	27	6	0	8	91	0	256
08:15	87	44	0	37	3	0	5	99	0	275
08:30	70	47	0	36	10	0	4	81	0	248
08:45	74	35	0	25	4	0	3	61	0	202
Hour	309	172	0	125	23	0	20	332	0	981
09:00	39	27	0	12	0	0	3	36	0	117
09:15	40	29	0	14	1	0	3	31	0	118
09:30	38	24	0	16	0	0	3	48	0	129
09:45	45	22	0	19	1	0	3	46	0	136
Hour	162	102	0	61	2	0	12	161	0	500
10:00	30	19	0	20	3	0	4	48	0	124
10:15	34	27	0	24	3	0	1	32	0	121
10:30	30	28	0	17	0	0	3	36	0	114
10:45	30	26	0	13	2	0	3	37	0	111
Hour	124	100	0	74	8	0	11	153	0	470
11:00	42	20	0	15	4	0	3	46	0	130
11:15	37	30	0	18	2	0	4	24	0	115
11:30	30	24	0	30	2	0	3	37	0	126
11:45	32	17	0	16	1	0	1	30	0	97
Hour	141	91	0	79	9	0	11	137	0	468
12:00	43	26	0	17	0	0	3	34	0	123
12:15	52	36	0	20	2	0	6	37	0	153
12:30	44	32	0	25	2	0	6	35	0	144
12:45	46	39	0	27	1	0	4	48	0	165
Hour	185	133	0	89	5	0	19	154	0	585

Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06
Page : 2

Unshifted

Start Time	Blue Rock Road From North			Galbraith Road From East			Blue Rock Road From South			Intrvl. Total
	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	
13:00	41	40	0	28	4	0	1	44	0	158
13:15	52	34	0	29	0	0	6	30	0	151
13:30	48	48	0	23	3	0	3	32	0	157
13:45	41	37	0	13	2	0	6	44	0	143
Hour	182	159	0	93	9	0	16	150	0	609
14:00	53	35	0	28	4	0	2	41	0	163
14:15	43	35	0	27	5	0	7	46	0	163
14:30	54	34	0	32	4	0	4	43	0	171
14:45	66	27	0	19	5	0	5	63	0	185
Hour	216	131	0	106	18	0	18	193	0	682
15:00	83	70	0	34	17	0	3	39	0	246
15:15	71	46	0	37	25	0	4	51	0	234
15:30	66	48	0	40	6	0	9	76	0	245
15:45	83	45	0	38	6	0	3	58	0	233
Hour	303	209	0	149	54	0	19	224	0	958
16:00	109	53	0	46	5	0	3	88	0	304
16:15	104	78	0	41	6	0	2	83	0	314
16:30	108	86	0	41	28	0	35	86	0	384
16:45	111	91	0	70	18	0	17	85	0	392
Hour	432	308	0	198	57	0	57	342	0	1394
17:00	117	80	0	34	15	0	19	92	0	357
17:15	130	106	0	35	12	0	11	97	0	391
17:30	132	103	0	36	12	0	11	107	0	401
17:45	115	101	0	25	8	0	8	82	0	339
Hour	494	390	0	130	47	0	49	378	0	1488
Total	2991	2014	0	1335	257	0	258	2787	0	9642
% Apr.	59.7	40.2	-	83.8	16.1	-	8.4	91.5	-	-
% Int.	31.0	20.8	-	13.8	2.6	-	2.6	28.9	-	-

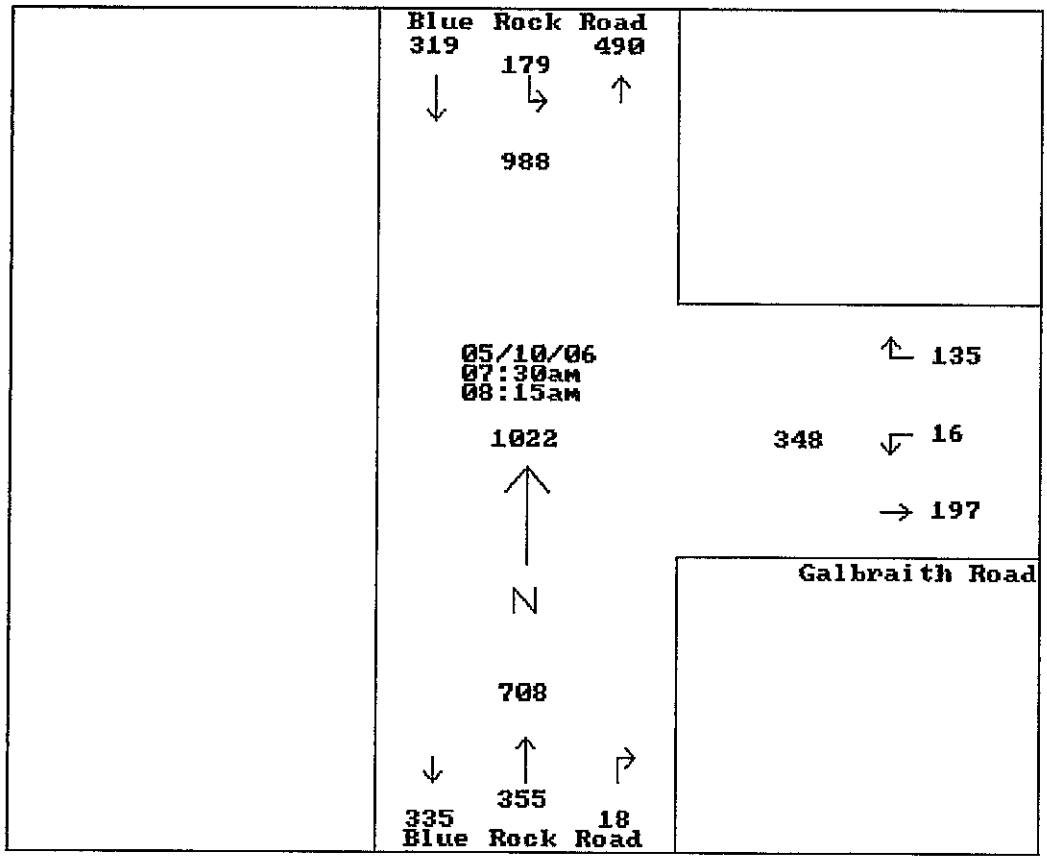
Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06

Unshifted

Start Time	Blue Rock Road From North Thru	Left	Peds	Galbraith Road From East Right	Left	Peds	Blue Rock Road From South Right	Thru	Peds	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 06:00 on 05/10/06 to 11:45 on 05/10/06										
Time	07:30			07:30			07:30			
Vol.	319	179	0	135	16	0	18	355	0	
Pct.	64.0	35.9	0.0	89.4	10.5	0.0	4.8	95.1	0.0	
Total	498			151			373			
High	08:15			07:30			08:15			
Vol.	87	44	0	41	5	0	5	99	0	
Total	131			46			104			
PHF	0.950			0.820			0.896			



A.M. PEAK HOUR

Blue Rock Road & Galbraith Road

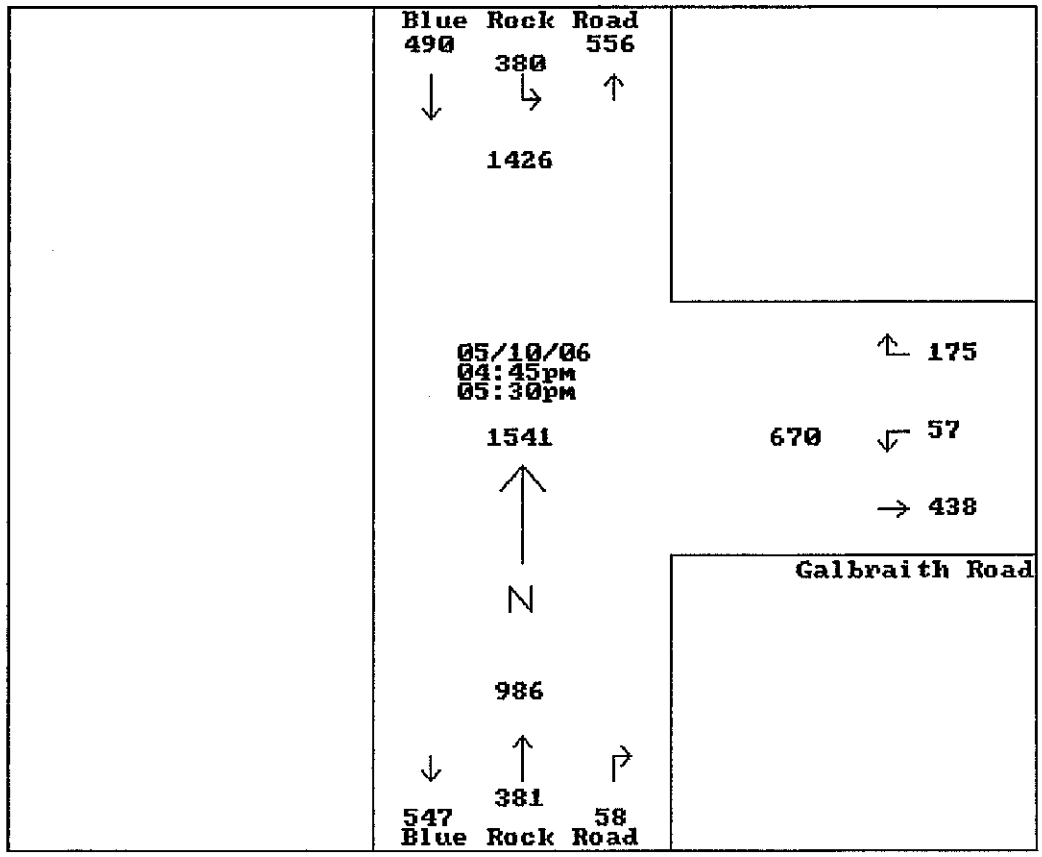
Colerain Township

Count Dates: May 10 & 11, 2006
Count Days: Wednesday & Thursday
Count By: Dave McClain
Weather: Rain

Study Name: GALBLUER
Site Code : 00000000
Start Date: 05/10/06

Unshifted

Start Time	Blue Rock Road From North Thru	Left	Peds	Galbraith Road From East Right	Left	Peds	Blue Rock Road From South Right	Thru	Peds	Intrvl. Total
Peak Hour Analysis By Entire Intersection for the Period: 12:00 on 05/10/06 to 17:45 on 05/10/06										
Time	16:45			16:45			16:45			
Vol.	490	380	0	175	57	0	58	381	0	
Pct.	56.3	43.6	0.0	75.4	24.5	0.0	13.2	86.7	0.0	
Total	870			232			439			
High	17:15			16:45			17:30			
Vol.	130	106	0	70	18	0	11	107	0	
Total	236			88			118			
PHF	0.921			0.659			0.930			



P.M. PEAK HOUR

Blue Rock Road & Galbraith Road

Colerain Township

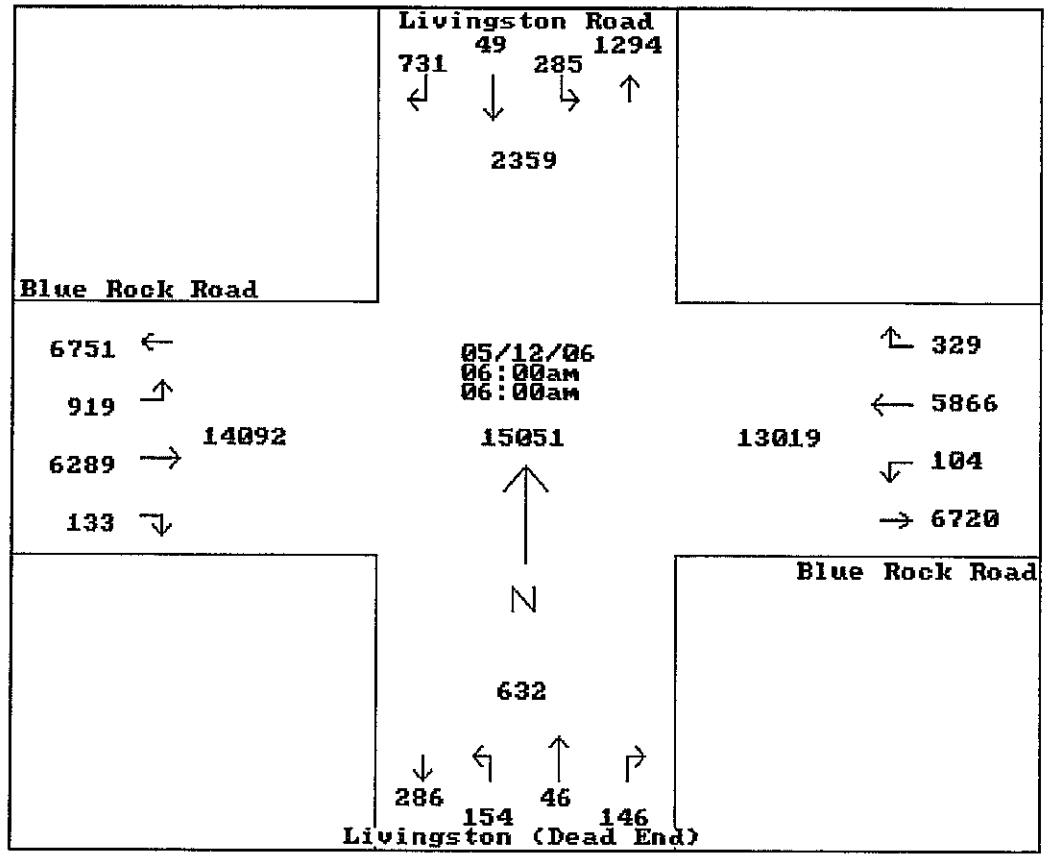
Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BLUERLIV
Site Code : 00000000
Start Date: 05/12/06

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Grp 1	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	
05/12/0																	
06:00	731	49	285	0	329	5866	104	0	146	46	154	0	133	6289	919	0	15051
% Apr.	68.6	4.6	26.7	-	5.2	93.1	1.6	-	42.1	13.2	44.5	-	1.8	85.6	12.5	-	-
% Int.	4.8	0.3	1.8	-	2.1	38.9	0.6	-	0.9	0.3	1.0	-	0.8	41.7	6.1	-	-



24 Hour Count (Factor = 1.43)

Blue Rock Road & Livingston Road

Colerain Township

2006 Manual Traffic Count

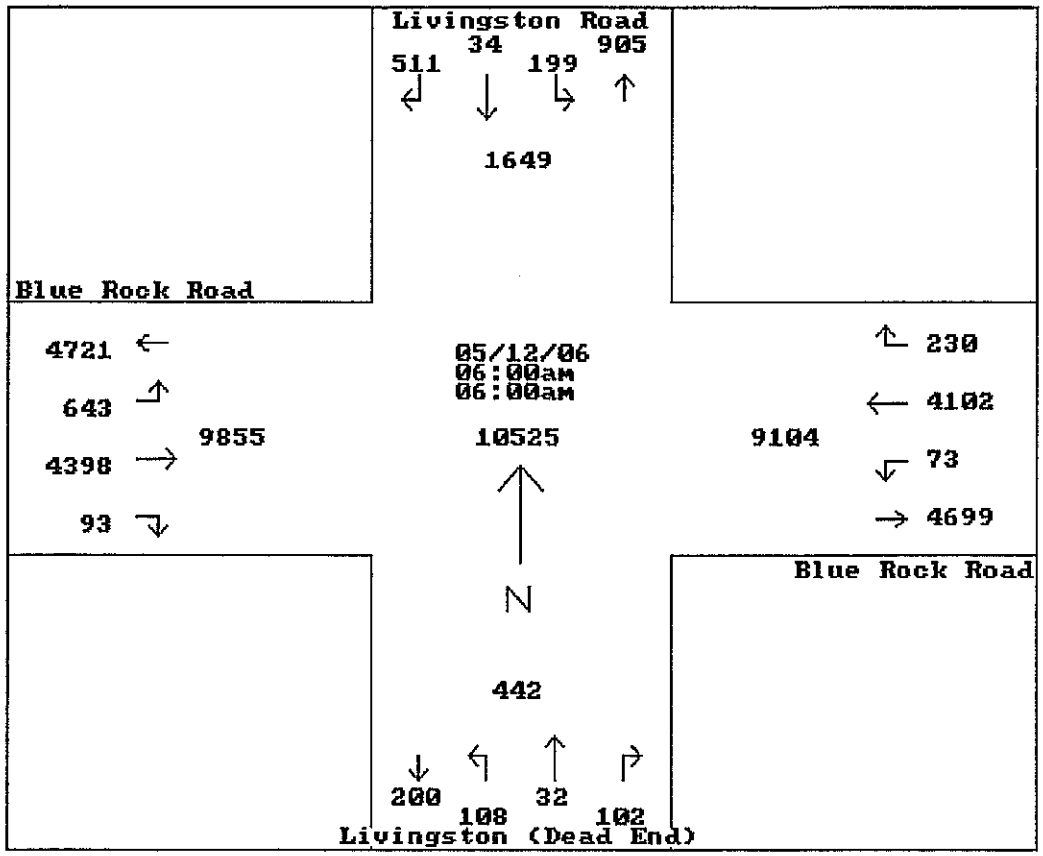
Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Study Name: BLUERLIV
Site Code : 00000000
Start Date: 05/12/06
Page : 1

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
05/12/06																	
06:00	511	34	199	0	230	4102	73	0	102	32	108	0	93	4398	643	0	10525
% Apr.	68.6	4.5	26.7	-	5.2	93.1	1.6	-	42.1	13.2	44.6	-	1.8	85.6	12.5	-	-
% Int.	4.8	0.3	1.8	-	2.1	38.9	0.6	-	0.9	0.3	1.0	-	0.8	41.7	6.1	-	-



12 Hour Count

Blue Rock Road & Livingston Road

Colerain Township

2006 Manual Traffic Count

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Study Name: BLUERLIV
Site Code : 00000000
Start Date: 05/12/06

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
05/12/06																	
06:00	4	0	0	0	0	46	0	0	1	0	1	0	0	32	2	0	86
06:15	9	0	1	0	0	66	0	0	1	1	1	0	0	49	7	0	135
06:30	10	0	4	0	2	114	2	0	0	0	2	0	1	52	15	0	202
06:45	10	0	3	0	7	79	0	0	1	0	2	0	1	57	22	0	182
Hour	33	0	8	0	9	305	2	0	3	1	6	0	2	190	46	0	605
07:00	21	0	6	0	3	128	0	0	3	3	6	0	2	72	47	0	291
07:15	12	0	10	0	5	143	0	0	5	0	5	0	1	119	47	0	347
07:30	16	0	3	0	3	145	4	0	5	2	4	0	2	131	17	0	332
07:45	13	0	4	0	4	109	2	0	2	0	2	0	2	136	11	0	285
Hour	62	0	23	0	15	525	6	0	15	5	17	0	7	458	122	0	1255
08:00	11	0	6	0	9	117	1	0	6	2	1	0	1	129	7	0	290
08:15	7	1	2	0	0	102	0	0	2	0	2	0	2	59	13	0	190
08:30	9	1	2	0	1	83	2	0	3	2	4	0	3	79	15	0	204
08:45	6	1	3	0	3	83	1	0	2	1	3	0	1	77	5	0	186
Hour	33	3	13	0	13	385	4	0	13	5	10	0	7	344	40	0	870
09:00	8	1	3	0	5	71	1	0	1	1	3	0	1	76	9	0	180
09:15	4	0	4	0	1	57	1	0	0	0	1	0	0	76	4	0	148
09:30	6	0	0	0	0	53	1	0	0	0	3	0	2	58	8	0	131
09:45	7	0	3	0	6	45	1	0	0	0	2	0	1	58	8	0	131
Hour	25	1	10	0	12	226	4	0	1	1	9	0	4	268	29	0	590
10:00	5	1	2	0	6	59	2	0	1	0	3	0	1	61	9	0	150
10:15	6	0	0	0	1	55	0	0	2	0	0	0	2	55	9	0	130
10:30	5	0	2	0	2	61	1	0	0	0	2	0	0	58	5	0	136
10:45	3	3	0	0	3	53	2	0	1	0	0	0	3	53	5	0	126
Hour	19	4	4	0	12	228	5	0	4	0	5	0	6	227	28	0	542
11:00	6	1	2	0	6	51	1	0	2	0	2	0	4	62	4	0	141
11:15	5	0	2	0	3	55	1	0	2	0	5	0	2	51	10	0	136
11:30	9	1	3	0	3	50	0	0	1	0	2	0	0	45	10	0	124
11:45	6	0	3	0	1	54	0	0	3	0	2	0	5	56	10	0	140
Hour	26	2	10	0	13	210	2	0	8	0	11	0	11	214	34	0	541
12:00	10	0	4	0	2	59	2	0	0	0	1	0	3	50	5	0	136
12:15	7	1	0	0	3	60	2	0	1	2	2	0	3	81	11	0	173
12:30	3	1	1	0	3	55	0	0	1	3	4	0	1	72	13	0	157
12:45	6	0	4	0	1	56	3	0	2	0	2	0	3	60	11	0	148
Hour	26	2	9	0	9	230	7	0	4	5	9	0	10	263	40	0	614

Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BLUKRLIV
Site Code : 00000000
Start Date: 05/12/06

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
13:00	6	0	2	0	4	55	1	0	0	0	2	0	2	88	8	0	168
13:15	12	2	2	0	5	64	1	0	3	1	3	0	3	73	13	0	182
13:30	10	0	4	0	4	70	7	0	2	1	1	0	1	67	8	0	175
13:45	8	1	0	0	2	75	0	0	4	0	1	0	2	95	5	0	193
Hour	36	3	8	0	15	264	9	0	9	2	7	0	8	323	34	0	718
14:00	12	0	1	0	5	61	3	0	5	1	1	0	0	53	9	0	151
14:15	10	1	10	0	8	61	1	0	3	0	0	0	2	68	10	0	174
14:30	23	2	9	0	3	76	2	0	3	0	2	0	3	104	19	0	246
14:45	34	1	13	0	13	88	1	0	3	1	1	0	2	109	16	0	282
Hour	79	4	33	0	29	286	7	0	14	2	4	0	7	334	54	0	853
15:00	23	1	6	0	5	109	1	0	2	0	3	0	2	114	15	0	281
15:15	23	1	10	0	9	105	1	0	3	1	1	0	0	103	21	0	278
15:30	14	1	8	0	9	107	3	0	1	1	3	0	4	124	17	0	292
15:45	17	0	11	0	9	103	3	0	3	0	1	0	0	124	16	0	287
Hour	77	3	35	0	32	424	8	0	9	2	8	0	6	465	69	0	1138
16:00	13	0	9	0	13	101	1	0	1	0	3	0	3	107	10	0	261
16:15	10	1	0	0	3	98	1	0	2	0	1	0	8	154	25	0	303
16:30	16	1	9	0	14	113	1	0	3	1	1	0	1	165	18	0	343
16:45	10	0	4	0	6	117	5	0	3	2	2	0	6	155	17	0	327
Hour	49	2	22	0	36	429	8	0	9	3	7	0	18	581	70	0	1234
17:00	13	1	8	0	16	136	2	0	5	1	3	0	1	168	16	0	370
17:15	18	5	9	0	6	182	1	0	2	2	5	0	4	203	24	0	461
17:30	9	1	2	0	5	141	7	0	2	1	4	0	0	186	24	0	382
17:45	6	3	5	0	8	131	1	0	4	2	3	0	2	174	13	0	352
Hour	46	10	24	0	35	590	11	0	13	6	15	0	7	731	77	0	1565
Total	511	34	199	0	230	4102	73	0	102	32	108	0	93	4398	643	0	10525
% Apr.	68.6	4.5	26.7	-	5.2	93.1	1.6	-	42.1	13.2	44.6	-	1.8	85.6	12.5	-	-
% Int.	4.8	0.3	1.8	-	2.1	38.9	0.6	-	0.9	0.3	1.0	-	0.8	41.7	6.1	-	-

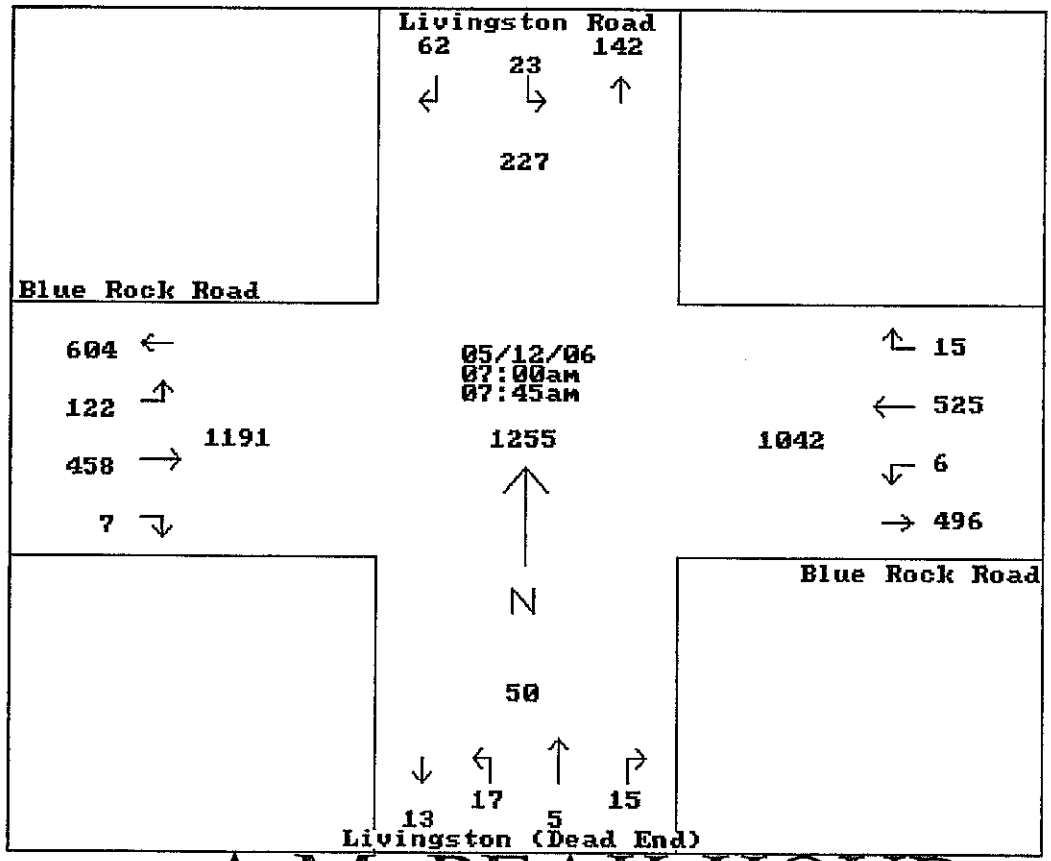
Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BLUERLIV
Site Code : 00000000
Start Date: 05/12/06

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Peak Hour Analysis By Entire Intersection for the Period: 06:00 on 05/12/06 to 11:45 on 05/12/06																	
Time	07:00				07:00				07:00				07:00				
Vol.	62	0	23	0	15	525	6	0	15	5	17	0	7	458	122	0	
Pct.	72.9	0.0	27.0	0.0	2.7	96.1	1.0	0.0	40.5	13.5	45.9	0.0	1.1	78.0	20.7	0.0	
Total	85				546				37				587				
High	07:00				07:30				07:00				07:15				
Vol.	21	0	6	0	3	145	4	0	3	3	6	0	1	119	47	0	
Total	27				152				12				167				
PHF	0.787				0.898				0.770				0.878				



A.M. PEAK HOUR

Blue Rock Road & Livingston Road

Colerain Township

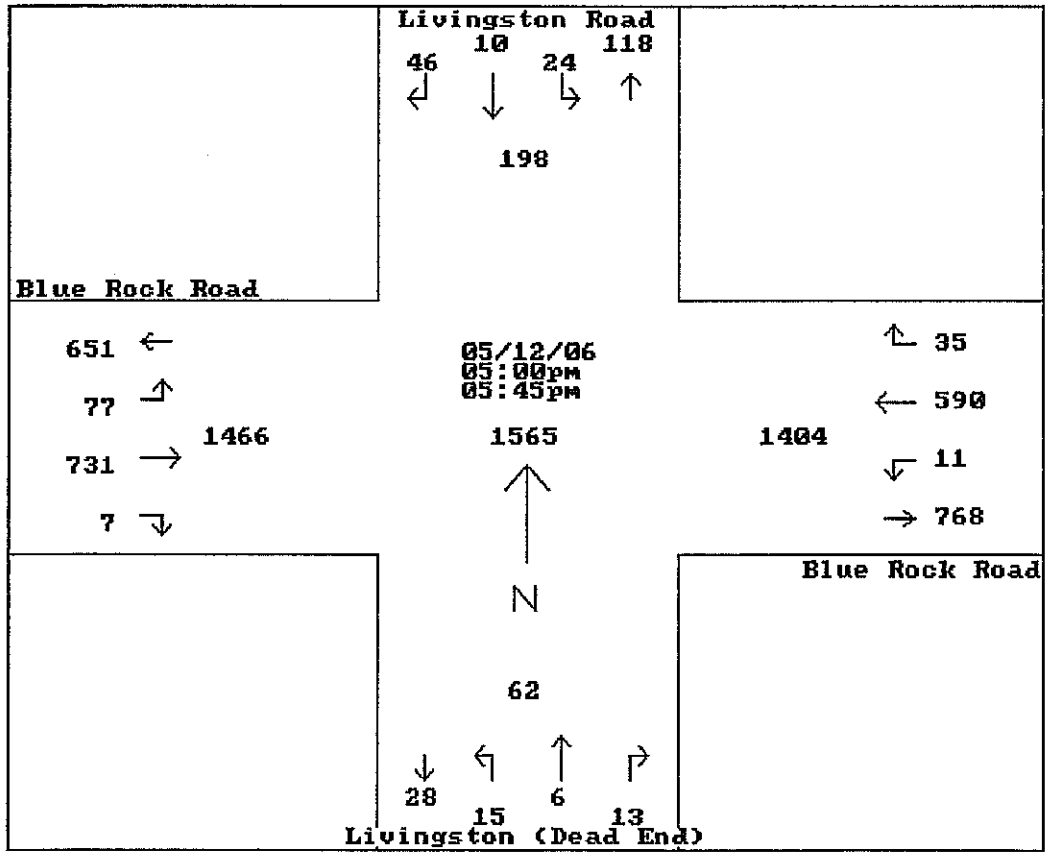
Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Dates: May 12 & 15, 2006
Count Days: Friday & Monday
Count By: Dave McClain
Weather: Overcast & Rain

Study Name: BLUERLIV
Site Code : 00000000
Start Date: 05/12/06

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston (Dead End) From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Peak Hour Analysis By Entire Intersection for the Period: 12:00 on 05/12/06 to 17:45 on 05/12/06																	
Time	17:00				17:00				17:00				17:00				
Vol.	46	10	24	0	35	590	11	0	13	6	15	0	7	731	77	0	
Pct.	57.5	12.5	30.0	0.0	5.5	92.7	1.7	0.0	38.2	17.6	44.1	0.0	0.8	89.6	9.4	0.0	
Total	80				636				34				815				
High	17:15				17:15				17:00				17:15				
Vol.	18	5	9	0	6	182	1	0	5	1	3	0	4	203	24	0	
Total	32				189				9				231				
PHF	0.625				0.841				0.944				0.882				



P.M. PEAK HOUR

Blue Rock Road & Livingston Road

Colerain Township

Mitron Systems Volume Count Report

Site Name	Blue Rock Road @ 4408
Jurisdiction	Colerain Township
Study Type	Volume (ch1)
Location Code	71
Direction	None
Date	4/18/06
Real Time	10:59
Start Date	4/18/06
Start Time	11:00
Sample Time	00:15
Operator Number	2
Machine Number	18

- 800' NORTH OF GALBRAITH ROAD

Tuesday, April 18, 2006

	4/18/06				
HR Begin	HR Total	00-15	15-30	30-45	45-00
11	683	151	172	185	175
12	702	174	165	161	202
13	788	180	196	206	206
14	922	184	213	273	252
15	1286	267	322	346	351
16	1669	390	420	449	410
17	1686	427	464	392	403
18	1189	375	324	269	221
19	808	227	197	183	201
20	726	192	204	172	158
21	558	175	129	146	108
22	330	104	96	76	54
23	188	56	55	38	39
00	115	32	43	19	21
01	56	21	11	11	13
02	35	12	11	5	7
03	51	16	7	16	12
04	38	11	6	12	9
05	174	20	39	47	68
06	570	70	105	195	200
07	1041	210	299	291	241
08	823	235	207	205	176
09	637	155	154	173	155
10	573	124	147	151	151
	15648	Total			

ADT - 15,648

AM Peak Hour Start	07:15
AM Peak Hour Total	1066
AM Peak Hour Factor	89.13 %
PM Peak Hour Start	16:30
PM Peak Hour Total	1750
PM Peak Hour Factor	94.29 %

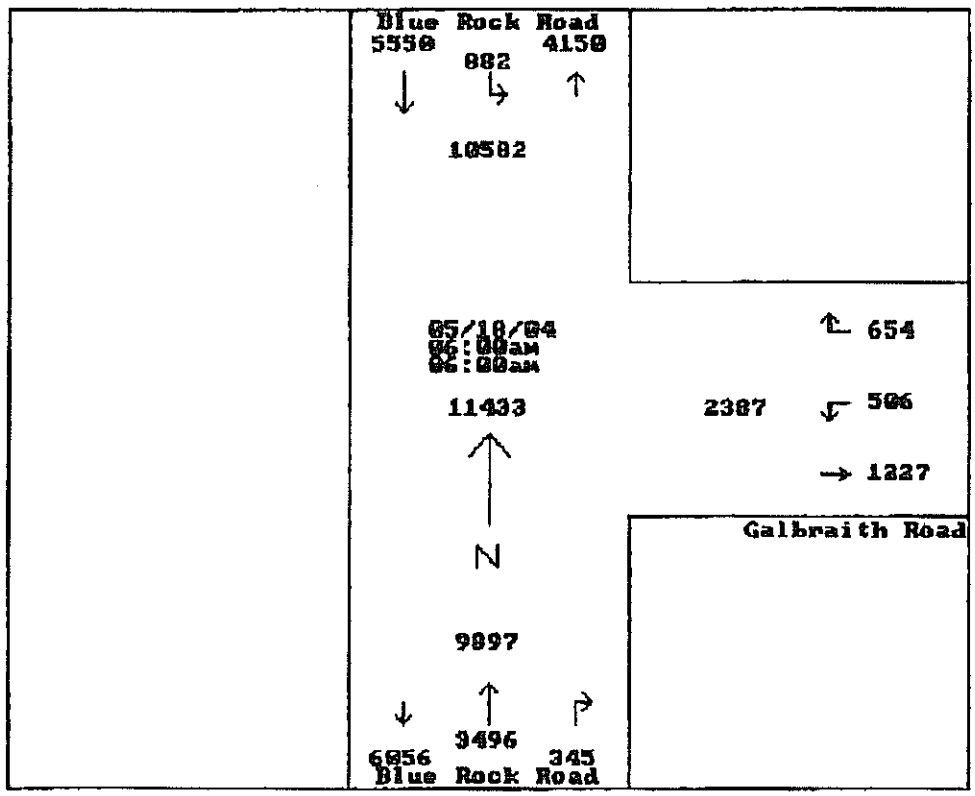
Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Date: May 18 & 19, 2004
Count Days: Tuesday & Wednesday
Count By: Drew Stewart
Weather: Partly Cloudy & Warm

Study Name: GALBLURK
Site Code : 00000000
Start Date: 05/18/04
Page : 1

Unshifted

Start Time	Blue Rock Road Southbound Thru	Blue Rock Road Southbound Left	Galbraith Road Westbound Right	Galbraith Road Westbound Left	Blue Rock Road Northbound Right	Blue Rock Road Northbound Thru	Intrvl. Total
Grp 1	1.430	1.430	1.430	1.430	1.430	1.430	
05/18/04							
06:00	5550	882	654	506	345	3496	11433
% Apr.	86.2	33.7	56.3	43.6	8.9	91.0	-
% Int.	48.5	7.7	5.7	4.4	3.0	30.5	-



24 Hour Count (Factor = 1.43)

Blue Rock Road & Galbraith Road

Colerain Township

2004 Manual Traffic Count

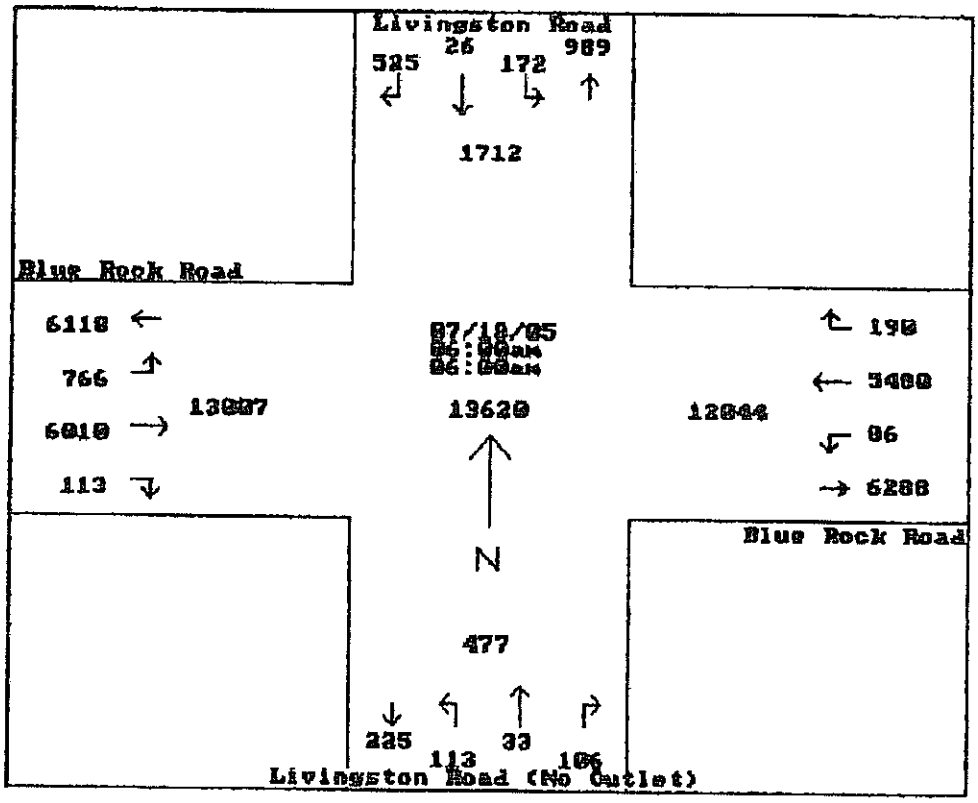
Count Dates: July 18 & 19, 2005
Count Days: Monday & Tuesday
Count By: Brian Roberson
Weather: Sunny

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BRLIVING
Site Code : 00000000
Start Date: 07/18/05
Page : 1

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston Road (No Outlet From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
Grp 1	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430	
07/18/0																	
06:00	525	26	172	0	190	5480	86	0	106	33	113	0	113	6010	766	0	13620
% Apr.	72.6	3.5	23.7	-	3.3	95.2	1.4	-	42.0	13.0	44.8	-	1.6	87.2	11.1	-	-
% Int.	3.8	0.1	1.2	-	1.3	40.2	0.6	-	0.7	0.2	0.8	-	0.8	44.1	5.6	-	-



24 Hour Count (Factor = 1.43)

BLUE ROCK ROAD & LIVINGSTON ROAD

Colerain Township

2005 Manual Traffic Count

Count Dates: July 18 & 19, 2005
Count Days: Monday & Tuesday
Count By: Brian Roberson
Weather: Sunny

Hamilton County Engineer's Office
William M. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BRLIVING
Site Code : 00000000
Start Date: 07/18/05
Page : 2

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston Road (No Outlet From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
13:00	3	1	3	0	2	76	3	0	5	0	1	0	2	80	6	0	182
13:15	6	0	3	0	4	62	2	0	3	1	1	0	4	74	10	0	170
13:30	6	0	2	0	1	78	2	0	2	0	4	0	2	48	10	0	155
13:45	13	0	1	0	4	71	1	0	2	0	0	0	2	74	12	0	180
Hour	28	1	9	0	11	287	8	0	12	1	6	0	10	276	38	0	687
14:00	9	0	2	0	0	50	4	0	0	0	0	0	2	68	7	0	142
14:15	7	0	5	0	2	75	1	0	2	1	1	0	3	93	12	0	202
14:30	7	2	3	0	7	76	1	0	0	0	1	0	3	81	12	0	193
14:45	9	0	5	0	2	74	2	0	1	2	1	0	3	85	13	0	197
Hour	32	2	15	0	11	275	8	0	3	3	3	0	11	327	44	0	734
15:00	5	0	1	0	2	76	1	0	2	0	2	0	3	98	10	0	200
15:15	9	0	5	0	5	72	0	0	0	0	3	0	5	110	10	0	219
15:30	9	1	5	0	5	96	2	0	3	2	0	0	2	107	13	0	245
15:45	10	1	1	0	6	88	1	0	1	2	2	0	3	137	20	0	272
Hour	33	2	12	0	18	332	4	0	6	4	7	0	13	452	53	0	936
16:00	15	0	0	0	4	98	3	0	0	0	1	0	3	126	14	0	264
16:15	10	0	4	0	7	99	2	0	0	0	0	0	1	134	14	0	271
16:30	16	1	2	0	5	111	1	0	0	0	2	0	0	182	12	0	332
16:45	8	2	2	0	3	120	1	0	3	1	1	0	4	165	22	0	332
Hour	49	3	8	0	19	428	7	0	3	1	4	0	8	607	62	0	1199
17:00	9	0	4	0	3	107	0	0	3	0	0	0	3	196	12	0	337
17:15	10	1	4	0	3	132	3	0	1	0	1	0	2	197	18	0	372
17:30	15	0	1	0	5	119	5	0	1	2	4	0	3	178	21	0	354
17:45	11	2	3	0	1	116	1	0	2	1	0	0	3	150	23	0	313
Hour	45	3	12	0	12	474	9	0	7	3	5	0	11	721	74	0	1376
Total	367	18	120	0	133	3832	60	0	74	23	79	0	79	4203	536	0	9524
% Apr.	72.6	3.5	23.7	-	3.3	95.2	1.4	-	42.0	13.0	44.8	-	1.6	87.2	11.1	-	-
% Int.	3.8	0.1	1.2	-	1.3	40.2	0.6	-	0.7	0.2	0.8	-	0.8	44.1	5.6	-	-

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Dates: July 18 & 19, 2005
Count Days: Monday & Tuesday
Count By: Brian Roberson
Weather: Sunny

Study Name: BRLIVING
Site Code : 00000000
Start Date: 07/18/05
Page : 1

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston Road (No Outlet From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07/18/05																	
06:00	2	0	2	0	0	37	0	0	2	0	0	0	0	25	1	0	69
06:15	6	0	2	0	0	58	0	0	1	0	0	0	0	18	7	0	92
06:30	8	0	0	0	0	102	1	0	0	0	2	0	0	42	4	0	159
06:45	6	0	3	0	1	85	0	0	2	0	1	0	1	58	5	0	162
Hour	22	0	7	0	1	282	1	0	5	0	3	0	1	143	17	0	482
07:00	3	0	3	0	3	102	0	0	3	0	2	0	0	34	1	0	151
07:15	9	0	3	0	6	116	0	0	1	1	8	0	0	71	12	0	227
07:30	12	0	2	0	2	139	1	0	1	1	2	0	1	77	8	0	246
07:45	12	0	2	0	2	110	0	0	2	0	2	0	2	104	8	0	244
Hour	36	0	10	0	13	467	1	0	7	2	14	0	3	286	29	0	868
08:00	10	1	3	0	2	81	0	0	3	1	1	0	0	84	9	0	195
08:15	7	0	1	0	1	85	0	0	4	0	2	0	1	59	5	0	165
08:30	6	2	2	0	1	64	1	0	5	2	5	0	0	69	5	0	162
08:45	4	0	2	0	2	69	1	0	2	0	2	0	0	70	19	0	171
Hour	27	3	8	0	6	299	2	0	14	3	10	0	1	282	38	0	693
09:00	7	0	4	0	0	56	1	0	1	1	2	0	2	59	18	0	151
09:15	1	0	1	0	1	54	1	0	0	1	1	0	0	80	11	0	151
09:30	7	0	3	0	4	62	0	0	3	0	2	0	1	61	7	0	150
09:45	3	1	4	0	3	73	0	0	0	1	0	0	1	72	8	0	166
Hour	18	1	12	0	8	245	2	0	4	3	5	0	4	272	44	0	618
10:00	5	1	3	0	3	59	3	0	0	0	3	0	2	60	12	0	151
10:15	6	0	1	0	2	51	1	0	0	0	2	0	0	54	8	0	125
10:30	9	0	2	0	2	61	2	0	1	0	1	0	0	79	15	0	172
10:45	10	0	2	0	3	61	0	0	2	0	3	0	3	59	8	0	151
Hour	30	1	8	0	10	232	6	0	3	0	9	0	5	252	43	0	599
11:00	7	0	3	0	1	60	1	0	0	0	1	0	2	66	10	0	151
11:15	5	1	1	0	2	53	2	0	2	0	3	0	1	63	16	0	149
11:30	6	0	1	0	3	75	0	0	3	1	2	0	1	82	8	0	182
11:45	4	0	1	0	3	60	3	0	1	0	2	0	1	65	12	0	152
Hour	22	1	6	0	9	248	6	0	6	1	8	0	5	276	46	0	634
12:00	5	1	3	0	6	68	0	0	1	0	1	0	3	66	6	0	160
12:15	5	0	5	0	1	65	2	0	1	1	1	0	0	84	9	0	174
12:30	12	0	2	0	6	58	1	0	0	1	2	0	2	73	12	0	169
12:45	3	0	3	0	2	72	3	0	2	0	1	0	2	86	21	0	195
Hour	25	1	13	0	15	263	6	0	4	2	5	0	7	309	48	0	698

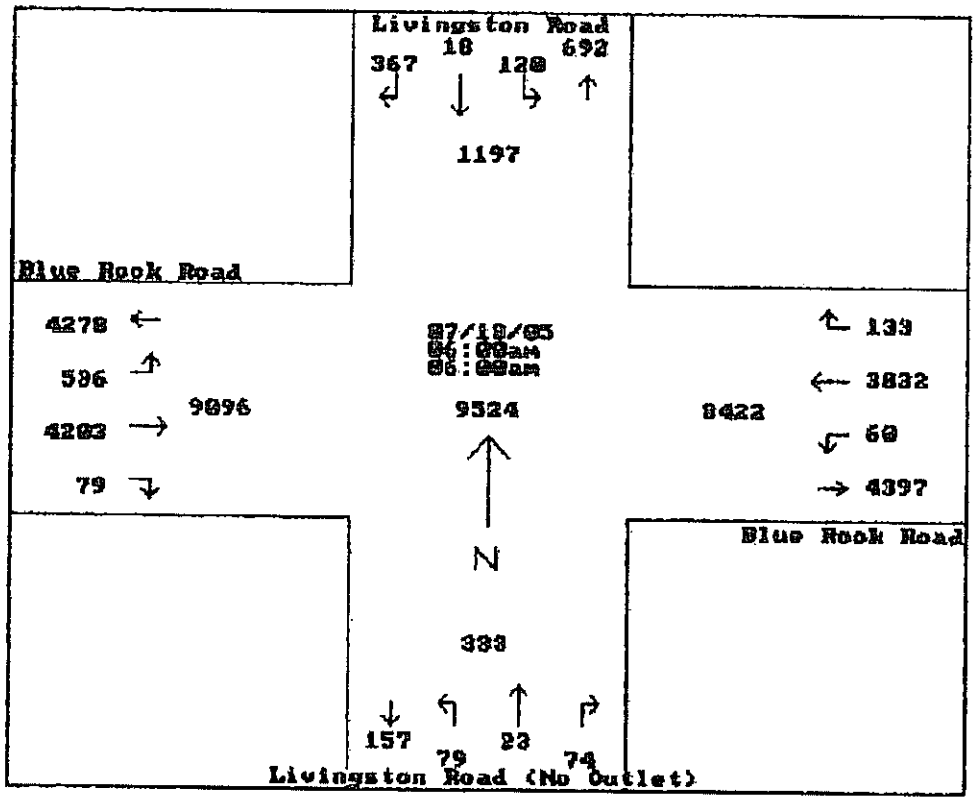
Count Dates: July 18 & 19, 2005
Count Days: Monday & Tuesday
Count By: Brian Roberson
Weather: Sunny

Hamilton County Engineer's Office
William M. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Study Name: BRLIVING
Site Code : 00000000
Start Date: 07/18/05
Page : 1

Unshifted

Start Time	Livingston Road From North				Blue Rock Road From East				Livingston Road (No Outlet From South				Blue Rock Road From West				Intvl. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07/18/05																	
06:00	367	18	120	0	133	3832	60	0	74	23	79	0	79	4203	536	0	9524
% Apr.	72.6	3.5	23.7	-	3.3	95.2	1.4	-	42.0	13.0	44.8	-	1.6	87.2	11.1	-	-
% Int.	3.8	0.1	1.2	-	1.3	40.2	0.6	-	0.7	0.2	0.8	-	0.8	44.1	5.6	-	-



12 Hour Count

BLUE ROCK ROAD & LIVINGSTON ROAD

Colerain Township

2005 Manual Traffic Count

Hamilton County Engineer's Office
William W. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Date: May 18 & 19, 2004
Count Days: Tuesday & Wednesday
Count By: Drew Stewart
Weather: Partly Cloudy & Warm

Study Name: GALBLURK
Site Code : 00000000
Start Date: 05/18/04
Page : 2

Unshifted

Start Time	Blue Rock Road Southbound Thru	Left	Galbraith Road Westbound Right	Left	Blue Rock Road Northbound Right	Thru	Intrvl. Total
13:00	71	4	10	5	6	59	155
13:15	77	6	7	3	9	56	158
13:30	54	7	9	3	8	46	127
13:45	61	5	6	6	10	44	132
Hour	263	22	32	17	33	205	572
14:00	59	18	6	5	5	55	148
14:15	81	6	10	4	8	50	159
14:30	76	10	6	3	6	46	147
14:45	64	8	9	17	5	43	146
Hour	280	42	31	29	24	194	600
15:00	102	21	20	23	6	71	243
15:15	109	15	17	19	8	51	219
15:30	103	12	9	10	4	39	177
15:45	85	15	8	9	5	49	171
Hour	399	63	54	61	23	210	810
16:00	93	11	8	11	5	58	186
16:15	113	6	17	17	5	54	212
16:30	96	19	11	10	2	43	181
16:45	115	20	12	17	10	62	236
Hour	417	56	48	55	22	217	815
17:00	89	10	7	26	7	60	199
17:15	111	9	9	13	6	66	214
17:30	118	17	18	19	14	55	241
17:45	145	27	17	24	7	66	286
Hour	463	63	51	82	34	247	940
Total	3881	617	457	354	241	2445	7995
% Apr.	86.2	13.7	56.3	43.6	8.9	91.0	-
% Int.	48.5	7.7	5.7	4.4	3.0	30.5	-

Hamilton County Engineer's Office
William H. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Date: May 18 & 19, 2004
Count Days: Tuesday & Wednesday
Count By: Drew Stewart
Weather: Partly Cloudy & Warm

Study Name: GALBLURK
Site Code : 00000000
Start Date: 05/18/04
Page : 1

Unshifted

Start Time	Blue Rock Road Southbound		Galbraith Road Westbound		Blue Rock Road Northbound		Intrvl. Total
	Thru	Left	Right	Left	Right	Thru	
05/18/04							
06:00	46	12	7	1	4	20	90
06:15	48	10	4	2	1	25	90
06:30	50	7	4	1	2	25	89
06:45	52	7	6	2	3	54	124
Hour	196	36	21	6	10	124	393
07:00	69	8	6	1	2	39	125
07:15	79	9	11	6	2	47	154
07:30	86	14	8	3	1	45	157
07:45	84	12	8	4	1	67	176
Hour	318	43	33	14	6	198	612
08:00	120	19	15	5	1	71	231
08:15	122	18	9	4	2	57	212
08:30	116	36	12	14	4	51	233
08:45	67	11	7	3	3	48	139
Hour	425	84	43	26	10	227	815
09:00	73	12	4	3	4	60	156
09:15	60	18	18	2	4	58	160
09:30	62	8	6	3	5	50	134
09:45	88	8	6	3	8	47	160
Hour	283	46	34	11	21	215	610
10:00	84	12	7	7	6	48	164
10:15	74	13	6	3	3	39	138
10:30	79	12	4	3	2	37	137
10:45	46	12	4	2	3	35	102
Hour	283	49	21	15	14	159	541
11:00	45	9	4	0	4	38	100
11:15	88	18	3	2	1	52	164
11:30	78	17	10	5	9	62	181
11:45	89	18	11	3	2	72	195
Hour	300	62	28	10	16	224	640
12:00	42	23	17	5	6	49	142
12:15	72	11	14	9	6	60	172
12:30	74	7	15	13	10	67	186
12:45	66	10	15	1	6	49	147
Hour	254	51	61	28	28	225	647

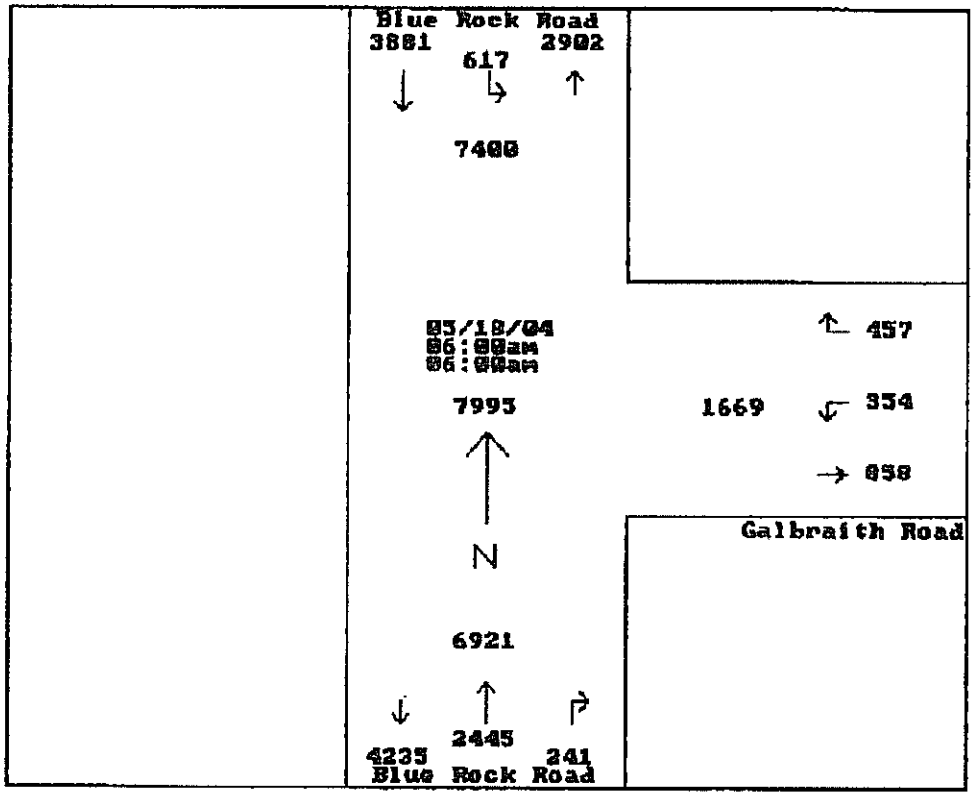
Hamilton County Engineer's Office
William M. Brayshaw, P.E.-P.S.
Hamilton County Engineer
**** Traffic Department ****

Count Date: May 18 & 19, 2004
Count Days: Tuesday & Wednesday
Count By: Drew Stewart
Weather: Partly Cloudy & Warm

Study Name: GALBLURK
Site Code : 00000000
Start Date: 05/18/04
Page : 1

Unshifted

Start Time	Blue Rock Road Southbound Thru	Left	Galbraith Road Westbound Right	Left	Blue Rock Road Northbound Right	Thru	Intrvl. Total
05/18/04							
06:00	3881	617	457	354	241	2445	7995
% Apr.	86.2	13.7	56.3	43.6	8.9	91.0	-
% Int.	48.5	7.7	5.7	4.4	3.0	30.5	-



12 Hour Count

Blue Rock Road & Galbraith Road

Colerain Township

2004 Manual Traffic Count

BLUE ROCK ROAD

River Road to Colerain/Kipling Avenue

DISTANCE:	LOCATION:	ADDRESS:	COMMENTS:
91+30	Private Drive	6365	255' South of Sheits Road
94+50	Private Drive	6359	575' South of Sheits Road
96+00	Private Drive	6337	725' South of Sheits Road
98+05	Private Drive	6329	930' South of Sheits Road
98+45	Private Drive	6326	970' South of Sheits Road
101+20	Private Drives	6322/6315	1245' South of Sheits Road
103+80	Private Drive	6281	1505' South of Sheits Road
106+00	Private Drive	6251	1725' South of Sheits Road
110+00	Private Drive	6217	1755' North of Church Street
116+00	Private Drive	6165	1155' North of Church Street
117+00	Private Drive	6147	1055' North of Church Street
117+65	Private Drive	6144	990' North of Church Street
118+00	Private Drive	6134	955' North of Church Street
123+00	Private Drives	6100/6093	455' North of Church Street
127+55	**CHURCH STREET**	**6074/6070**	
128+85	Private Drive	6066	130' South of Church Street
137+00	Private Drive	6041	945' South of Church Street
140+00	Private Drive	5996	1245' South of Church Street
142+50	Private Drives	6023-6035	1495' South of Church Street
142+90	Private Drive	5985	1520' North of Blue Rock Hill
147+50	Private Drive	5953	1060' North of Blue Rock Hill
150+90	Private Drive	5988-5896	720' North of Blue Rock Hill
151+50	Private Drive	5926	660' North of Blue Rock Hill
156+60	Private Drive	5886	150' North of Blue Rock Hill
158+10	**BLUE ROCK HILL DRIVE**	**5880**	
161+50	**NORTHWEST DRIVE**	**5800**	
178+00	**I-275 WEST RAMPS (ON/OFF)**	**5630**	
182+00	**I-275 OVERPASS**	**5585**	
183+15	**I-275 EAST RAMP (ON)**	**5570**	
190+00	**SPRINGDALE CONNECTOR**	**5500**	
208+50	**WB REAGAN HWY EXIT TO NB**	**5160**	
214+40	**WB REAGAN HWY EXIT TO SB**	**5060**	
216+70	**RONALD REAGAN OVERPASS**	**5020**	
221+20	**EB REAGAN HWY EXIT ONLY**	**4930**	
225+60	**SHEED RD/EB REAGAN HWY (ON)**	**4850**	
228+00	Private Drives	4823/4821	240' South of Sheed Road

BLUE ROCK ROAD

River Road to Colerain/Kipling Avenue

DISTANCE:	LOCATION:	ADDRESS:	COMMENTS:
229+50	Private Drives	4803/4788	390' South of Sheed Road
230+15	Private Drives	4779/4780	455' South of Sheed Road
230+70	Private Drive	4759	510' South of Sheed Road
231+80	Private Drive	4742	470' West of Livingston Road
232+50	Private Drive	4739	400' West of Livingston Road
233+80	Private Drive	4695	270' West of Livingston Road
235+50	Private Drive	4668	100' West of Livingston Road
236+50	**LIVINGSTON ROAD**	**4649**	
239+20	Private Drives	4595/4594	270' East of Livingston Road
239+90	Private Drive	4569	340' East of Livingston Road
241+00	Private Drive	4564	450' East of Livingston Road
241+70	Private Drive	4550/4535	520' East of Livingston Road
242+50	Private Drive	4534	600' East of Livingston Road
243+50	Private Drive	4510	700' East of Livingston Road
243+90	Private Drive	4500	740' East of Livingston Road
244+80	Private Drive	4470	830' East of Livingston Road
245+30	Private Drive	4460	880' East of Livingston Road
245+80	Private Drive	4450	930' East of Livingston Road
246+90	Private Drive	4428	880' North of Galbraith Road
247+85	Private Drive	4408	785' North of Galbraith Road
248+60	Private Drive	4390	710' North of Galbraith Road
249+40	Private Drive	4379/4378	630' North of Galbraith Road
251+45	Private Drive	4341	425' North of Galbraith Road
251+65	Private Drive	4340	405' North of Galbraith Road
252+50	Private Drive	4320	320' North of Galbraith Road
253+50	Private Drive	4300	220' North of Galbraith Road
255+70	**GALBRAITH ROAD**	**4250**	
256+40	Private Drive	4201	70' South of Galbraith Road
258+40	Private Drive	4201	270' South of Galbraith Road
260+65	Private Drive	4125	495' South of Galbraith Road
264+35	Private Drive	4048	865' South of Galbraith Road
271+75	Private Drives	3815/3811	1075' West of Philnoll Drive
274+20	Private Drive	3796	830' West of Philnoll Drive
275+80	Private Drives	3791	670' West of Philnoll Drive
276+15	Private Drive	3788	635' West of Philnoll Drive
276+35	Private Drive	3785	615' West of Philnoll Drive

SCIP/LTIP PROGRAM
ROUND 21 - PROGRAM YEAR 2007
PROJECT SELECTION CRITERIA
JULY 1, 2007 TO JUNE 30, 2008

NAME OF APPLICANT: HAMILTON COUNTY

NAME OF PROJECT: BLUE ROCK/LIVINGSTON/GALBRAITH

RATING TEAM: 2

General Statement for Rating Criteria

Points awarded for all items will be based on engineering experience, field verification, application information and other information supplied by the applying agency, which is deemed to be relevant by the Support Staff. The examples listed in this addendum are not a complete list, but only a small sampling of situations that may be relevant to a given project.

CIRCLE THE APPROPRIATE RATING

1) **What is the physical condition of the existing infrastructure that is to be replaced or repaired?**

25 - Failed
23 - Critical
20 - Very Poor
17 - Poor
15 - Moderately Poor
(10) - Moderately Fair
5 - Fair Condition
0 - Good or Better

CORES INDICATED SOLID PAVEMENT, MINOR MAINTENANCE REQUIRED

Appeal Score

_____

Criterion 1 - Condition

Condition of the particular infrastructure to be repaired, reconstructed or replaced shall be a measure of the degree of reduction in condition from its original state. Capacity, serviceability, safety and health shall not be considered in this criterion. Any documentation the Applicant wishes to be considered must be included in the application package.

Definitions:

Failed Condition –requires complete reconstruction where no part of the existing facility is salvageable. (E.g. Roads: complete reconstruction of roadway, curbs and base; Bridges: complete removal and replacement of bridge; Underground: removal and replacement of an underground drainage or water system.

Critical Condition - requires partial reconstruction to maintain integrity. (E.g. Roads: reconstruction of roadway/curbs can be saved; Bridges: removal and replacement of bridge with abutment modification; Underground: removal and replacement of part of an underground drainage or water system.

Very Poor Condition - requires extensive rehabilitation to maintain integrity. (E.g. Roads: extensive full depth, partial depth and curb repair of a roadway with a structural overlay; Bridges: superstructure replacement; Underground: repair of joints and/or replacement of pipe sections.

Poor Condition - requires standard rehabilitation to maintain integrity. (E.g. Roads: moderate full depth, partial depth and curb repair to a roadway with no structural overlay needed or structural overlay with minor repairs to a roadway needed; Bridges: extensive patching of substructure and replacement of deck; Underground: insituform or other in ground repairs.

Moderately Poor Condition - requires minor rehabilitation to maintain integrity. (E.g. Roads: minor full depth, partial depth or curb repairs to a roadway with either a thin overlay or no overlay needed; Bridges: major structural patching and/or major deck repair.

Moderately Fair Condition - requires extensive maintenance to maintain integrity. (E.g. Roads: thin or no overlay with extensive crack sealing, minor partial depth and/or slurry or rejuvenation; Bridges: minor structural patching, deck repair, erosion control.)

Fair Condition - requires routine maintenance to maintain integrity. (E.g. Roads: slurry seal, rejuvenation or routine crack sealing to the roadway; Bridges: minor structural patching.)

Good or Better Condition - little to no maintenance required to maintain integrity.

Note: **If the infrastructure is in "good" or better condition, it will NOT be considered for SCIP/LTIP funding unless it is an expansion project that will improve serviceability.**

2) **How important is the project to the safety of the Public and the citizens of the District and/or service area?**

- 25 - Highly significant importance
- 20 - Considerably significant importance
- (15) - Moderate importance
- 10 - Minimal importance
- 5 – Poorly documented importance
- 0 - No measurable impact

- Blue Rock & Lymington cited in Consult. Report 22 accidents in 3 years, no rate provided.

Appeal Score _____

Criterion 2 – Safety

The applying agency shall include in its application the type, frequency, and severity of the safety problem that currently exists and how the intended project would improve the situation. For example, have there been vehicular accidents attributable to the problems cited? Have they involved injuries or fatalities? In the case of water systems, are existing hydrants non-functional? In the case of water lines, is the present capacity inadequate to provide volumes or pressure for adequate fire protection? **In all cases, specific documentation is required.** Mentioned problems, which are poorly documented, shall not receive more than 5 points.

Note: Each project is looked at on an individual basis to determine if any aspects of this category apply. **Examples given above are NOT intended to be exclusive.**

3) **How important is the project to the health of the Public and the citizens of the District and/or service area?**

- 25 - Highly significant importance
- 20 - Considerably significant importance
- 15 - Moderate importance
- 10 - Minimal importance
- 5 - Poorly documented importance
- (0) - No measurable impact

Appeal Score _____

Criterion 3 – Health

The applying agency shall include in its application the type, frequency, and severity of the health problem that would be eliminated or reduced by the intended project. For example, can the problem be eliminated only by the project, or would routine maintenance be satisfactory? If basement flooding has occurred, was it storm water or sanitary flow? What complaints if any are recorded? In the case of underground improvements, how will they improve health if they are storm sewers? How would improved sanitary sewers improve health or reduce health risk? **In all cases, quantified documentation is required.** Mentioned problems, which are poorly documented, shall not receive more than 5 points.

Note: Each project is looked at on an individual basis to determine if any aspects of this category apply. **Examples given above are NOT intended to be exclusive.**

4) **Does the project help meet the infrastructure repair and replacement needs of the applying agency?**
Note: Applying agency's priority listing (part of the Additional Support Information) must be filed with application(s).

- 25 - First priority project
- 20 - Second priority project
- (15) - Third priority project
- 10 - Fourth priority project
- 5 - Fifth priority project or lower

Appeal Score _____

Criterion 4 – Jurisdiction's Priority Listing

The applying agency must submit a listing in priority order of the projects for which it is applying. Points will be awarded on the basis of most to least importance. The form is included in the Additional Support Information.

5) **To what extent will a user fee funded agency be participating in the funding of the project?**

10 – Less than 10%
9 – 10% to 19.99%
8 – 20% to 29.99%
7 – 30% to 39.99%
6 – 40% to 49.99%
5 – 50% to 59.99%
4 – 60% to 69.99%
3 – 70% to 79.99%
2 – 80% to 89.99%
1 – 90% to 95%
0 – Above 95%

Appeal Score

_____

Criterion 5 – User Fee-funded Agency Participation
To what extent will a user fee funded agency be participating in the funding of the project? (Example: rates for water or sewer, frontage assessments, etc.). The applying agency must submit documentation.

6) **Economic Growth – How the completed project will enhance economic growth (See definitions).**

10 – The project will directly secure new employment
5 – The project will permit more development
0 – The project will not impact development

Appeal Score

_____

Criterion 6 – Economic Growth
Will the completed project enhance economic growth and/or development in the service area?
Definitions:
Secure new employment: The project as designed will secure development/employers, which will immediately add new permanent employees to the jurisdiction. The applying agency must submit details.
Permit more development: The project as designed will permit additional business development/employment. The applying agency must supply details.
The project will not impact development: The project will have no impact on business development.

Note: **Each project is looked at on an individual basis to determine if any aspects of this category apply.**

7) **Matching Funds - LOCAL**

10 - This project is a loan or credit enhancement
10 – 50% or higher
8 – 40% to 49.99%
6 – 30% to 39.99%
4 – 20% to 29.99%
2 – 10% to 19.99%
0 – Less than 10%

List total percentage of "Local" funds _____%

Criterion 7 – Matching Funds – Local

The percentage of matching funds which come directly from the budget of the applying agency. Ten points shall be awarded if a loan request is at least 50% of the total project cost. (If the applying agency is not a user fee funded agency, any funds to be provided by a user fee generating agency will be considered "Matching Funds – Other")

8) Matching Funds – OTHER

List total percentage of "Other" funds _____%

10 – 50% or higher
8 – 40% to 49.99%
6 – 30% to 39.99%
4 – 20% to 29.99%
2 – 10% to 19.99%
(1) – 1% to 9.99%
0 – Less than 1%

List below each funding source and percentage

_____	_____ %
_____	_____ %
_____	_____ %
Colerain Township	17 %
	12
_____	_____ %

Criterion 8 – Matching Funds - Other

The percentage of matching funds that come from funding sources other than those mentioned in Criterion 7. A letter from the outside funding agency stating their financial participation in the project and the amount of funding is required to receive points. For MRF, a copy of the current application form filed with the Hamilton County Engineer's Office meets the requirement.

9) Will the project alleviate serious capacity problems or hazards or respond to the future level of service needs of the district?

10 - Project design is for future demand. Blue Rock/Livingston - appeal 10
(8) - Project design is for partial future demand. Blue Rock/Galbraith - appeal 6
6 - Project design is for current demand.
4 - Project design is for minimal increase in capacity.
2 - Project design is for no increase in capacity.

Appeal Score _____

Criterion 9 – Alleviate Capacity Problems

The applying agency shall provide a narrative, along with pertinent support documentation, which describe the existing deficiencies and showing how congestion will be reduced or eliminated and how service will be improved to meet the needs of any expected growth or development. A formal capacity analysis accompanying the application would be beneficial. Projected traffic or demand should be calculated as follows:

Formula:

Existing users x design year factor = projected users

Design Year	Design year factor		
	Urban	Suburban	Rural
20	1.40	1.70	1.60
10	1.20	1.35	1.30

Definitions:

Future demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service for twenty-year projected demand or fully developed area conditions. Justification must be supplied if the area is already largely developed or undevelopable and thus the projection factors used deviate from the above table.

Partial future demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service for ten-year projected demand or partially developed area conditions. Justification must be supplied if the area is already largely developed or undevelopable and thus the projection factors used deviate from the above table.

Current demand – Project will eliminate existing congestion or deficiencies and will provide sufficient capacity or service only for existing demand and conditions.

Minimal increase – Project will reduce but not eliminate existing congestion or deficiencies and will provide a minimal but less than sufficient increase in existing capacity or service for existing demand and conditions.

No increase – Project will have no effect on existing congestion or deficiencies and provide no increase in capacity or service for existing demand and conditions.

10) **Readiness to Proceed - If SCIP/LTIP funds are granted, when would the construction contract be awarded?**

(5) Will be under contract by December 31, 2007 and no delinquent projects in Rounds 18 & 19
3 - Will be under contract by March 31, 2008 and/or one delinquent project in Rounds 18 & 19
0 - Will not be under contract by March 31, 2008 and/or more than one delinquent project in Rounds 18 & 19

Criterion 10 – Readiness to Proceed
The Support Staff will assign points based on engineering experience and status of design plans. A project is considered delinquent when it has not received a notice to proceed within the time stated on the original application and no time extension has been granted by the OPWC. An applying agency receiving approval for a project and subsequently canceling the same after the bid date on the application will receive zero (0) points under this round and the following round.

11) **Does the infrastructure have regional impact? Consider origination and destination of traffic, functional classifications, size of service area, and number of jurisdictions served, etc.**

Appr. state urban collector but connects to I-275 and RR Highway

10 – Major Impact
(8) – Significant Impact
6 – Moderate Impact
4 – Minor Impact
2 – Minimal or No Impact

Appeal Score _____

Criterion 11 - Regional Impact
The regional significance of the infrastructure that is being repaired or replaced.
Definitions:

Major Impact – Roads: Major Arterial: A direct connector to an Interstate Highway; Arterials are intended to provide a greater degree of mobility rather than land access. Arterials generally convey large traffic volumes for distances greater than one mile. A major arterial is a highway that is of regional importance and is intended to serve beyond the county. It may connect urban centers with one another and/or with outlying communities and employment or shopping centers. A major arterial is intended primarily to serve through traffic.

Significant Impact – Roads: Minor Arterial: A roadway, also serving through traffic, that is similar in function to a major arterial, but operates with lower traffic volumes, serves trips of shorter distances (but still greater than one mile), and may provide a higher degree of property access than do major arterials.

Moderate Impact – Roads: Major Collector: A roadway that provides for traffic movement between local roads/streets and arterials or community-wide activity centers and carries moderate traffic volumes over moderate distances (generally less than one mile). Major collectors may also provide direct access to abutting properties, such as regional shopping centers, large industrial parks, major subdivisions and community-wide recreational facilities, but typically not individual residences. Most major collectors are also county roads and are therefore through streets.

Minor Impact – Roads: Minor Collector: A roadway similar in functions to a major collector but which carries lower traffic volumes over shorter distances and has a higher degree of property access. Minor collectors may serve as main circulation streets within large, residential neighborhoods. Most minor collectors are also township roads and streets and may, or may not, be through streets.

Minimal or No Impact - Roads: Local: A roadway that is primarily intended to provide access to abutting properties. It tends to accommodate lower traffic volumes, serves short trips (generally within neighborhoods), and provides connections preferably only to collector streets rather than arterials.

12) **What is the overall economic health of the jurisdiction?**

10 Points
8 Points
(6) Points
4 Points
2 Points

Criterion 12 – Economic Health
The District 2 Integrating Committee predetermines the applying agency's economic health. The economic health of a jurisdiction may periodically be adjusted when census and other budgetary data are updated.

13) **Has any formal action by a federal, state, or local government agency resulted in a partial or complete ban of the usage or expansion of the usage for the involved infrastructure?**

10 - Complete ban, facility closed
8 – 80% reduction in legal load or 4-wheeled vehicles only
7 – Moratorium on future development, *not* functioning for current demand
6 – 60% reduction in legal load
5 - Moratorium on future development, functioning for current demand
4 – 40% reduction in legal load
2 – 20% reduction in legal load
(0) - Less than 20% reduction in legal load

Appeal Score _____

Criterion 13 - Ban
The applying agency shall provide documentation to show that a facility ban or moratorium has been formally placed. The ban or moratorium must have been caused by a structural or operational problem. Points will only be awarded if the end result of the project will cause the ban to be lifted.

14) **What is the total number of existing daily users that will benefit as a result of the proposed project?**

(10) 16,000 or more
8 - 12,000 to 15,999
6 - 8,000 to 11,999
4 - 4,000 to 7,999
2 - 3,999 and under

Appeal Score _____

Criterion 14 - Users
The applying agency shall provide documentation. A registered professional engineer or the applying agency's C.E.O must certify the appropriate documentation. Documentation may include current traffic counts, households served, when converted to a measurement of persons. Public transit users are permitted to be counted for the roads and bridges, but only when certifiable ridership figures are provided.

15) **Has the applying agency enacted the optional $5 license plate fee, an infrastructure levy, a user fee, or dedicated tax for the pertinent infrastructure? *(Provide documentation of which fees have been enacted.)***

5 - Two or more of the above
(3) - One of the above
0 - None of the above

Appeal Score _____

Criterion 15 – Fees, Levies, Etc.
The applying agency shall document (in the "Additional Support Information" form) which type of fees, levies or taxes they have dedicated toward the type of infrastructure being applied for.